ELEMENTARY HOME ECONOMICS

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ELEMENTARY HOME ECONOMICS

Measuring to find the Amount of Material needed for the Nightgown

ELEMENTARY HOME ECONOMICS

FIRST LESSONS IN SEWING AND TEXTILES, FOODS AND COOKERY, AND THE CARE OF THE HOUSE

BY

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PREFACE

This volume is intended for use in classes beginning the study of foods and cookery and also of sewing and textiles. It has been arranged for use in the elementary schools and presupposes little training in general science.

Part I deals with the selection of clothing and garment-making. Garments are made, the commercial patterns being used. The lessons in textiles are correlated with the lessons in garment-making by studying, in the class, the materials that are being used in the laboratory. The hygiene of clothing, attractive and suitable clothing, care and repair, and the clothing budget are discussed when the dress is the laboratory problem.

Part II deals with foods, their selection and preparation, and the planning of meals from the nutritive, æsthetic and economic standpoints. The "meal plan" is used in order to make the meal the basis of the work. Through the "Home Problems" it is hoped that the home and school work may be correlated.

While there are a number of textbooks on Home Economics for the elementary schools, there seems to be a need for one dealing with more than one phase of the subject as it is now taught in these schools. This book is intended for use in schools where one book is desired to cover the entire course, and is strictly an elementary treatment of the subject.

The author appreciates the help given in illustrating the book by the United States Department of Agriculture, the United States Bureau of Standards, the Detroit Stove Works, Cheney Brothers, The Linen Thread Company, Landers, Frary and Clark, and the Chambers Manufacturing Company. The author also gratefully acknowledges the criticisms and suggestions of educators who kindly read the manuscript.

M. L. M.

October 13, 1920.

TO THE STUDENT

Have you thought about what you will do when you finish school?

Perhaps you have decided to be a teacher, a librarian, a stenographer, a doctor, a nurse. Perhaps you are making plans to take a course in high school or college that will fit you for one of these callings; you would not consider yourself capable of entering any of them without training.

Very probably you will be at some time the manager of a home. Have you thought about the importance of being trained for home-making?

It is only within the past twenty-five years that it has been considered proper for the public schools to train girls for the work which most of them will do for the longest period in their lives, the work of home-making.

Mrs. Ellen H. Richards was the first to say that the schools ought to teach "right living;" and, largely through her efforts and her inspiration, plans have been worked out whereby girls while in school can be taught many things about right living.

Right living begins with the home. Who makes the home? The man may furnish the money to build and maintain the house, but it is the woman who plans and manages the home. It is her business to see that the family lives in a sanitary and an attractive house; that every member of the family has clean, properly selected and well cooked food; that every one is suitably clothed; that the family income is wisely spent, and that all in the home are helped to lead a happy and useful life.

No girl should consider the making and managing of a home an easy piece of work, for in fact nothing is harder to do and to do well.

When the girl takes work in school and college that covers all phases of home-making, we say that she is taking a course in Home Economics.

SUGGESTIONS

When planning a course in Home Economics for any school it is essential that the teacher should know from what kinds of homes the students come; what is the average income of the families of these girls; what nationalities they represent; what is the social life of the neighborhood. It is impractical to follow any textbook, page by page, without first knowing whether the lesson-plans suit the students to whom they are presented. When the teacher knows the neighborhood, she can wisely select and arrange the parts of the book to be assigned.

In many cases the recipes outlined in this book should be changed; and in no case should they be used as presented when the teacher has recipes which she has tested and knows to be good, and which may be used to illustrate the principle that is under discussion.

The Foods and Cookery lessons are outlined on the meal basis, making the meal the project, while the lessons on various foods are the problems to be studied before the project is completed. It is desirable that the laboratory equipment should include dining-room equipment, but when that is not available, serving the meal on a supply-table or at the individual desks may be the plan used. In any case the girls should be urged to try the work at home, making reports on the work done.

The lessons in Sewing and Textiles are planned with the garment as the project, with many problems to be studied which lead to its completion. It is advisable always to have a plain practical garment as the project rather than an elaborate one involving a great deal of hand-work.

Any school teaching sewing in the seventh and eighth grades should have its laboratories equipped with sewing-machines.

Lessons on the house and its care are correlated with the other work whenever possible.

The book is divided into sections instead of lessons, thus giving the teacher the opportunity to use as much or as little as is desired at any one time, since the amount of time allowed for Home Economics varies greatly in different schools.

The "Home Problems and Questions" may furnish material for lessons if plenty of time is allotted to this course, or may be used only as work to be done outside of class hours.

Illustrations and exhibit material that can be secured will help to make the work more interesting. The following firms furnish "School Exhibits" that will be found useful:

E. C. Bridgman, 61 Warren St., New York City, meat charts; Hershey Chocolate Company, Hershey, Pa., chocolate products; Diamond Crystal Salt Company, St. Claire, Mich., folder showing how salt is prepared; Pillsbury Flour Mills Company, Minneapolis, Minn., wheat-flour manufacture; Walter Baker & Company, Dorchester, Mass., chocolate products; The American Silver Company, Silversmith Building, Chicago, Ill., "The Evolution of a Teaspoon" (50¢., postage); Washburn Crosby Company, Minneapolis, Minn., flour exhibit; The Walter M. Lowney Company, Boston, Mass., chocolate; Wilson & Company, Chicago, Ill., meat charts, and recipes for cooking meat; J. Wiss & Sons Company, 15–33 Littleton Ave., Newark, N. J., scissors; W. H. Compton Shear Company, 307–309 Bergen St., Newark, N. J., scissors; S. B. & B. W. Fleisher, 25th & Reed Sts., Philadelphia, Pa., "Wool Processes" ($1.00); Cheney Brothers, 4th Ave. & 18th St., New York City, silk exhibit and booklets, "The Story of Silk" and "Glossary of Silk Terms"; Pacific Mills, Lawrence, Mass., cotton exhibit and wool exhibit; Belding Brothers & Company, Belding, Mich., booklet, "Silk Culture and Manufacture, Shown Progressively" (50¢. plus postage), and silk exhibit ($2.50 plus postage); Corticelli Silk Mills, Florence, Mass., book, "Silk, Its Origin, Culture and Manufacture" (50¢.), wall card, "How Silk Is Made" (20¢.), box containing silk cocoons (5¢.), silk-culture cabinet ($1.25).

In addition to the reference-books that should be found in the school library there are bulletins which are very valuable as reference material. Write to the following addresses and ask that publications be sent to you and your name put on their permanent mailing list:

Division of Home Economics, Bureau of Education, Washington, D. C.; Children's Bureau, Department of Labor, Washington, D. C.; Department of Agriculture, Washington, D. C. (also ask for lists giving names of Farmers' Bulletins, and for publications issued by Office of Home Economics); United States Public Health Service, Treasury Department, Washington, D. C.; Federal Board for Vocational Education, Washington, D. C.; all State University and Agricultural Colleges; American Home Economics Association, 1211 Cathedral St., Baltimore, Md., "The Journal of Home Economics" ($2.00 per year).

CONTENTS

PAGE
PREFACE v
TO THE STUDENT vii
SUGGESTIONS ix
LIST OF ILLUSTRATIONS xvii

PART I

SEWING AND TEXTILES

PRELIMINARY LESSONS

The Sewing-basket 3
Implements for the Sewing-basket 6

PROJECT I — THE SEWING-APRON

Materials for the Sewing-apron 10
Stitches to Use in Making the Apron . . . 12
A Piece of Cloth 15
Ginghams 18
Cotton 22
How Cotton Cloth is Made 28

PROJECT II — THE NIGHTGOWN

Cotton Materials Commonly Used for Underwear . 32
The Sewing-machine 36
Other Cotton Materials 40
Facts about Lace 43, 46
Dyeing 49
How Cotton Materials are Adulterated . . . 52
Ribbons to Use in Underwear 55
How Silk Materials are Made 59, 62

PAGE

PROJECT III — THE GIFT TOWEL

Towels 67
How Flax is Grown 70
The Making of Linen Cloth 72
Some Linen Fabrics 75

PROJECT IV — THE UNDERSLIP

Wool: Where it Comes From 80
How Cloth is Made from Wool 83
Wool Materials Commonly Used 87
Embroidery to Use on Underwear 90
Knitted Underwear and Stockings 96
The Cost of Clothing 101
The Care of Clothing 106
Removing Stains 110
Healthful Clothing 114

PROJECT V — THE WASH DRESS

Selecting a Wash Dress 120
The Becoming Dress 126
Appropriate Clothing 129
Some Points for the Consumer 132
Some Textile Tests 139

PROJECT VI — CHRISTMAS GIFTS 144

PART II

FOODS AND COOKERY, AND THE CARE OF THE HOUSE

PRELIMINARY LESSONS

Processes Used in Cooking 151
Some Points about Food 155
The Kitchen 158
Apparatus for the Kitchen 164
Dishwashing 169

PAGE

PROJECT I — BREAKFAST

The Breakfast Plan 175
Beverages 178, 182
Fruit 185
Milk 187
Cereals 192
Bread 194, 199
Eggs 204
The Dining Room 208
Table Manners 211
Style of Serving 215

PROJECT II — SUPPER OR LUNCHEON

The Plan for Supper or Luncheon 218
Meat Substitutes 221, 224
Salads 228
Dried Fruits 232
Quick Breads 235
Cake 239
The School Lunch 243

PROJECT III — DINNER

The Dinner Plan 249
Vegetables 254
The Potato 259
Other Starchy Foods 262
Meat 267, 271
Soups 278
Poultry, Game and Fish 281
Desserts 286
The Daily Meals of the Family Group . . . 291

PROJECT IV — FOOD PRESERVATION

The Preservation of Foods 301
Canning 305
Jelly-making 310

PAGE
PROJECT V — CHRISTMAS LESSONS 314

PROJECT VI — SUPPLEMENTARY LESSONS
The Care of the House 317, 320
Food for the Sick 324

INDEX 331

LIST OF ILLUSTRATIONS

Measuring to Find the Amount of Material Needed for the Nightgown . . . . . . *Frontispiece*

PAGE

Good Types of Shears and Scissors 4
Pages from the Booklet on "The Sewing-Basket" . . 7
Three Types of Basting 9
Method of Making Running-stitch 9
Method of Placing Needle in Hemming 12
Gathers Ready for Pulling into Place 13
Method of Overhanding 14
The Cover of the Textile Book 19
A Page in the Textile Book 20
Cotton Bolls 22
Position of the Needle in Feather-stitching . . . 24
Method of Sewing on Button 25
The Weaving-card 31
The Finished Sewing-apron 35
Steps in Making a Plain Seam 39
Machine-made French Seam 39
Lace Edgings of Good Design 44
Good Types of Beading 47
Ribbon Loom Weaving Silk for Neckties 56
Method of Folding Cloth when Cutting a True Bias . 58
Method of Joining Two Bias Strips 58
Finished Casing which Might be Used around the Neck of a Nightgown 59
Silkworm 60
Silk Cocoons 61

PAGE
Silk Moth 62
Weighing Raw Silk, Japan 63
The Finished Nightgown 66
Method of Hemstitching 69
Harvesting Flax by Hand 71
Retting Flax 73
Cross-stitching 78
Initial Done in Cross-stitch 79
Method of Making a French Hem 82
Construction of Woolen Yarns 84
Construction of Worsted Yarns 84
The Construction of a Felled Seam 86
Good Types of Embroideries 92
Back-stitching 94
Placket 94
The Finished Placket 95
Method of Joining Embroidery 99
The Right Side of the "Join" 100
Straightening the Bottom of the Underslip . . . 104
Method of Putting Ruffle on with a Tuck 105
Method of Making a Stocking Darn 109
Method of Basting Bias Strips around Armhole . . 117
The Finished Underslip 118
Four Steps in Making a Hemmed Patch 123
Four Steps in Making an Overhand Patch . . . 124
Method of Making Embroidered Scallops 134
A Page from the Clothing Book 135
Design in Blanket-stitch 137
Method of Making Blanket-stitch 137
Method of Making Chain-stitch 138
Cotton Fibers Magnified 140
Flax Fibers Magnified 140
Wool Fibers Magnified 141

PAGE
Silk Fibers Magnified 142
A Cooking Laboratory in a Rural School 151
Card-file Cook Book 152
One Type of Cooking-apron — Kimono Style . . . 154
Kitchen Equipment 157
A Convenient Kitchen 159
"Routing Lines" in a Kitchen 160
"Routing Lines" in a Well Arranged Kitchen . . . 162
Circulation of Air around Oven 165
Fireless Gas Range 166
The Fireless Cooker 168
One-piece Kitchen Sink, an Excellent Type . . . 170
Circulation of Air in Two Common Types of Refrigerator . 173
Three Types of Coffee-pots 180
Sandwiches made in Different Shapes 184
Equipment for Bread-making 196
Bread-mixer 198
Good Loaves of Bread 200
Bread Pans, Bread-stick Pans and Baking-sheet . . 202
Folding the Omelet as it Comes from the Pan . . . 207
Proper Way to Hold Knife and Fork 212
Arrangement of "Cover" for Dinner 214
Serving-dish Passed to the Left 216
Correct Method of Holding Soup or Bouillon Spoon . . 220
A Bean-pot Used for Baking Beans 226
Food-grinder 227
Three Salads 230
Cake-mixer 240
Lunch-box 244
Busy Cooks in a Rural School 246
Deep-fat Kettle, with Frying-Basket 251
No. 2, Croquettes. No. 3, Meat Loaf. No. 5, Pea Sandwiches 252

PAGE
American Meat-cutting Chart — Beef 272
American Meat-cutting Chart — Veal 273
American Meat-cutting Chart — Lamb 274
American Meat-cutting Chart — Pork 275
Serving the Dinner with a Tea-cart 292
Cold-pack Canning 302
Types of Canners 305
Types of Jars Used in Canning 306
Attractive Jars of Fruits and Vegetables 307
Types of Jelly Glasses 311
Pasteboard House, with Furnishings 321
Invalid's Tray, Supported by Pillow 325
Invalid's Tray, Well Arranged 326

PART I

SEWING AND TEXTILES

ELEMENTARY HOME ECONOMICS

SEWING AND TEXTILES

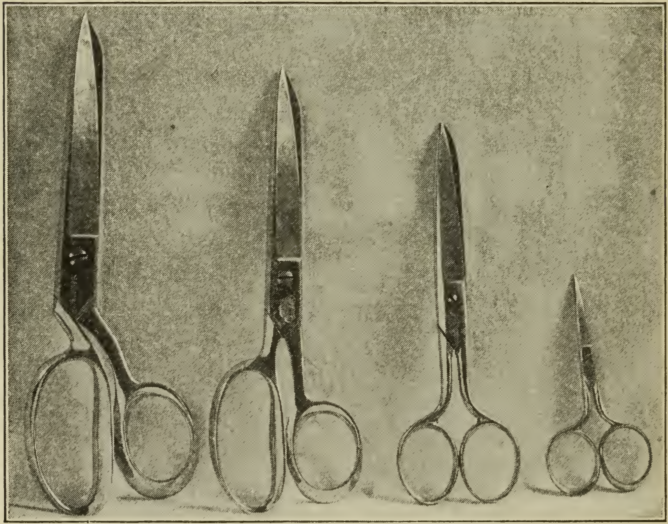
THE SEWING-BASKET

A SEWING-BASKET in which to place the implements used for sewing is needed by every seamstress if she is to do her sewing easily and well. A basket or box can be kept in better order than a bag, and sewing-materials when kept in a box or basket are less rumpled than when put in a bag.

The implements needed in the box are scissors or shears, tape-line, needles, emery bag, pin-cushion, pins, thread and thimble. In order to do good work the implements must be of the right kind and in good condition.

Scissors are six inches or less in length, while shears are over six inches in length. It is always best to buy shears when both cannot be purchased, because shears are always needed for cutting out garments.

Shears may be bent or straight in shape; the bent ones are easier to use because they do not raise the cloth far from the table in cutting. Select shears or scissors that are made of forged steel and that are not so tightly joined that they work hard. Scissors or shears must be sharp if they are to do good work. Be careful about allowing them to drop on the floor, since this loosens them so that they will not cut a true edge and may bend or break the point. Never buy cheap scissors or shears because cheap ones will never do satisfactory work. *Buttonhole scissors* used for cutting buttonholes are very convenient to have in the work-box.



Good Types of Shears and Scissors

The other implement found in the work-box made from steel is the needle. *Needles* have been used for a longer period than any other implement used for sewing. Needles made of fish-bones, of ivory and of bronze were used in early times. Steel needles originated in Spain and were introduced into England during the reign of Queen Elizabeth.

Needles, while very small, require a great deal of care in manufacture, and pass through the hands of a great many workmen before they are finished. Ordinary sewing-needles are sold in packages with twenty-five needles in each package.

There are three kinds of needles used for plain sewing: (1) *sharps*, the longest needles; (2) *grounddowns*, the next in length; and (3) *betweens*, which are the shortest needles.

Needles are of twelve sizes, the sizes being numbered from 1 to 12, the No. 12 being the finest. A package of needles may contain needles of different sizes or may contain needles all of one size. Sizes 8, 9 and 10 will be used most in our class work, as these are the sizes used for most ordinary sewing.

If needles and thread are too coarse for the sewing that is being done, the stitches will never look well. Select the thread that is near the size of the thread in the cloth on which the sewing is to be done, and select a needle just large enough to carry the thread. Good sewing cannot be done with a bent or rusty needle. Needles, when not being used, should be placed in the pin-cushion or in a needlebook and not left in the sewing.

LABORATORY EXERCISES

DIRECTIONS FOR LABORATORY WORK

Personal appearance: The hands should be washed before beginning any sewing. With a wool dress or skirt some kind of sewing-apron should be worn, so that the work will not become soiled from rubbing over the dress.

Position: Sit erect with back against chair and with feet on the floor. Hold the work so that there is no need for stooping over. Never pin work to your knee when sewing. Sitting with a table in front of you, when sewing, is the best plan.

Care of work: Needles should never be left in the material when one has finished sewing, because dampness may cause the needle to rust and this injures the material. Thread-ends on all spools should be slipped through the groove made for that purpose. The tape-line should be neatly folded, and all other equipment in the sewing-box placed in order. All materials used should be neatly folded before they are placed in the box, basket, or bag.

IMPLEMENTS FOR THE SEWING-BASKET

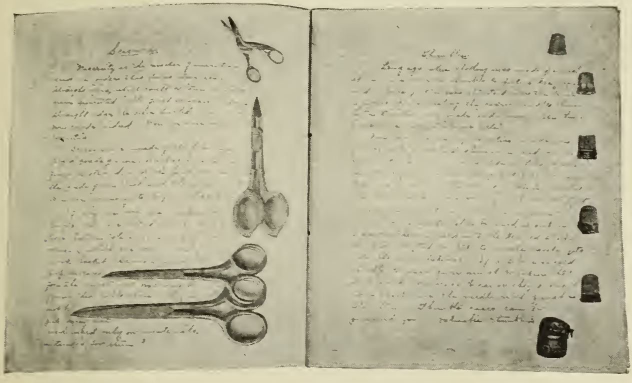
The *emery bag* is used for keeping the needle bright and free from rust.

The *tape-line* is always needed in doing accurate work. Select one made of cloth, double, and stitched on both edges, and finished with brass tips on the ends. It should be sixty inches in length and every inch should be divided into eighths.

Pins used in sewing should have a sharp point and should not be coarse. English pins are the best to buy because they are fine and sharp-pointed. Pins are made from brass wire and require a great deal of work in making. A "paper" contains 360 pins. Often pins to be used for sewing are sold by the box. Never use bent or rusty pins in sewing.

The best *pin-cushion* is stuffed with wool rather than cotton because needles and pins run through the wool much more easily than through the cotton. The pin-cushion may be used only for the pins and a needle-book used for the needles.

Thimbles are made from many materials, the most used materials being silver, gold, aluminum, celluloid and brass. Ivory and pearl thimbles are sometimes used. Thimbles may be plain, or decorated with etching or with jewels. Aluminum thimbles are very cheap but do not wear well. These are good to use in the class work because there is danger of losing a more expensive thimble. Silver thimbles are generally used by most seamstresses. A thimble made of brass should never be selected.


Pages from the Booklet on "The Sewing-basket"

The first thimble in England was made by John Lofting about 200 years ago. It was worn on the thumb and was called a "thumb bell." Our grandmothers used thimbles that were open on top and the needle was pushed through the cloth with the side of the thimble.

In selecting a thimble, buy one that is large enough to allow the end of the finger to strike the end of the thimble. The size is told by a number placed on the thimble.

Sewing-thread is made from cotton, linen and silk. Fine, smooth, even thread was not made until the sewing-machine was invented. A great deal of thread is now made in Scotland, but there are large factories in America. Cotton and linen threads are made in different sizes and are sold by number, the higher the number the finer the thread. The numbers do not run consecutively. Silk thread is numbered by letters, A, B, C and D being the usual sizes. Besides the ordinary sewing-threads there are many kinds made for special purposes, such as buttonhole twist and darning cotton.

When removing thread from the spool, measure a strand the length of the arm, cut it from the spool, and fasten the cut end on the spool through the little groove made for this purpose on the edge of the spool.

LABORATORY EXERCISES

LEARNING TO USE EQUIPMENT

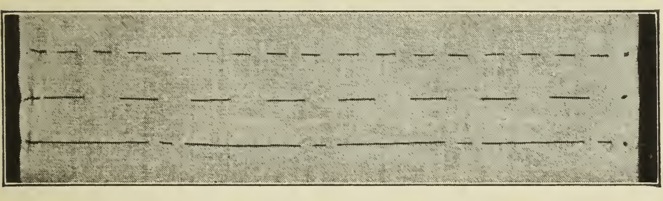
Scissors: Learn to hold scissors correctly. Practice cutting a straight edge. If bent shears are used, lay a piece of paper on the table and cut across it with the shears. How should they be held to keep the paper as nearly as possible flat on the table? When would it be convenient to use bent shears?

Tape-line: Make the following measurements with the tape-line, and indicate length on piece of paper: $\frac{5}{8}$ inch; $\frac{3}{4}$ in.; $1\frac{1}{4}$ in.; $\frac{1}{2}$ in.; $\frac{7}{8}$ in.; 1 in.

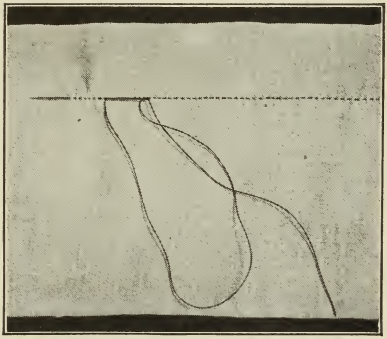
Thread: Measure length of thread to be used in needle; cut from spool with scissors, never bite nor break the thread. Fasten thread-end on spool. Thread needle. Practice making knot in end of thread; a knot should not be too large and should never have a "tail."

Thimble: Try on the thimble. Of what material is it made? Is it the proper size? Use it in doing all sewing.

Basting: This is used to hold material in place and to serve as a guide when sewing. Basting must be done in such a way that the material will be held firmly, and when it is to be used as a guide it must be straight. If possible, basting should be done in such a way that the final stitches in the sewing will not run through nor across the basting-stitches; it is then easier to remove the basting, and there will be no danger of breaking the thread used in the final stitching. Basting-stitches may be long, or short, or uneven in length. One fourth inch basting-stitches should be used for holding together materials for stitching on the sewing-machine; for long seams in skirts use three $\frac{1}{4}$ inch basting with one 2 or 3 inch basting-stitch. Practice making basting-stitches.



THREE TYPES OF BASTING



METHOD OF MAKING RUNNING-STITCH

Running-stitches: These are very small stitches, like basting-stitch, used to hold two or more pieces of cloth.

The stitches should be even in length, and the row of stitches kept straight. Hold the material between the thumb and forefinger of each hand, with the thimble against the end of the needle; take as many stitches on the needle as possible before drawing it through, pushing the needle with the thimble-finger and guiding it with the other four fingers. Fasten thread by taking two stitches, one over the other. Practice making the running-stitch.

REVIEW QUESTIONS

1. Name the implements that should be in the sewing-basket.
2. Of what materials are thimbles made? Which are best?
3. What are shears? scissors?
4. How should scissors be cared for?
5. Name three kinds of needles used for plain sewing.
6. How is the size stated?
7. What kind of pins should be used when sewing?
8. What kind of tape-line is best to buy?
9. How is the size of cotton thread indicated? silk?

MATERIALS FOR THE SEWING-APRON

A *sewing-apron* is very necessary when one is wearing a wool or silk dress, as it keeps the sewing material from rubbing against the dress and becoming soiled, and keeps ravelings off the dress. Sewing-aprons may be made from various materials. Three which may be used for the apron made in class are dimity, lawn and gingham. All of these are cotton materials.

Dimity is a material 30–36 inches in width, light weight, thin cloth, with cords or ribs which distinguish it. It is made in white, in plain colors, or in figures. The cord or rib in dimity is made by running a heavy thread through the material when it is being woven. The cord may run lengthwise only, or may run both lengthwise and crosswise, in which case it is called cross-barred dimity. The material usually breaks or splits along the cords when it wears out.

Lawn is a thin starched material, 36–40 inches in width, and is made in white, in plain colors, or in figures.

Both lawns and dimities fade badly when washed, especially those made in figures. They also rumple easily. These materials, however, make dainty aprons and are often trimmed with lace or finished with fancy stitches, such as feather-stitching. Lawns and dimities are used also for summer dresses. When selecting them for either aprons or dresses, choose a piece that is firmly woven of fine threads. This will require buying the medium or high-priced materials, but it is more economical to buy good material for such garments than to buy cheap cloth that will shrink and fade badly the first time it is washed. It is not economical to use time or spend money for making garments from cheap materials.

Ginghams are used probably more than any other fabric. They are of several types and vary in width and price. They are made in stripes, checks and plaids. Gingham of a good grade holds its color when washed and does not rumple like dimity and lawn.

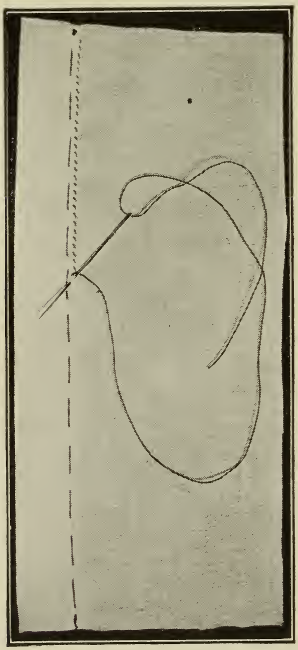
HOME PROBLEMS AND QUESTIONS

See if you can find pieces of dimity, lawn and gingham in the scrap-bag at home. Bring these to school to use in your Textile Book. Bring to school a sample of the material you expect to purchase to use in making the apron. What is the price of the material? What is the width?

LABORATORY EXERCISES

STITCHES TO USE IN MAKING THE APRON

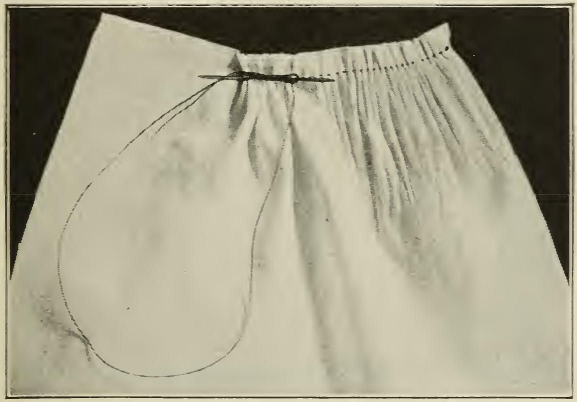
Textile study: Examine the samples of dimity, lawn and gingham brought to school. Discuss quality of each. From the samples brought from the stores, decide on two or three pieces that may be used for the aprons. Which will launder best? Let each pupil decide how much material will be needed for making the apron. How much will it cost? (See next lesson for description of apron.)



Method of Placing Needle in Hemming

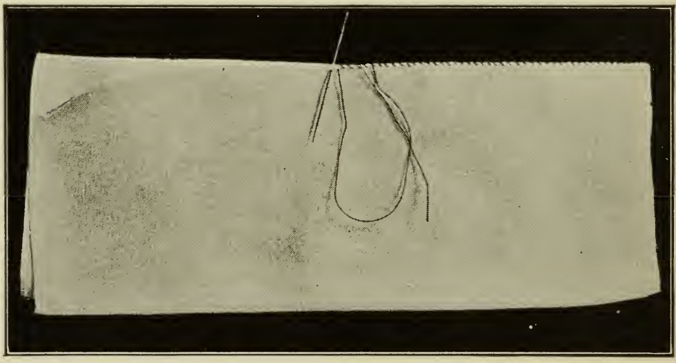
STITCHES

Hemming: A plain hem is made by turning the raw edge of material toward the wrong side, one eighth to one quarter inch, depending on the width of the hem; creasing this fold firmly and folding again toward the wrong side the desired width. A piece of cardboard marked to show the width of the hem may be used as a guide to keep the hem even when folding. Baste the hem. In making the apron the hems will be finished with the hemming-stitch down the side and the feather-stitch across the pocket. In hemming, hold the material over the first finger of the left hand with the thumb on top of the hem. Hide the knot in the thread under the folded edge of the hem. Take a tiny stitch in the material close to the fold, but before pulling the needle through, take up a tiny bit of the fold, holding the needle in a slanting position with its point toward the left shoulder. Pull needle through. Repeat, taking the next stitch a little beyond where the needle came out. Fasten the hemming by taking stitches one over the other. A hem is used as a finish for the raw edge of cloth.



Gathers Ready for Pulling into Place

Gathering: Gathering consists of small, running-stitches with the thread so drawn as to full the material. Gathers must be "laid" if they are to go into a band easily. To do this, fill the needle as full of stitches as possible, then draw the material together. Wrap the thread around the needle in such a way that the material is held firmly, then pull down on the material, holding the needle firmly between the thumb and first finger of left hand, doing the pulling with the right. When the cloth is creased so that the gathers stay in place, unwind the thread and pull the needle through the material. Repeat with each needleful. Gather on a single thread, being sure that there is a good knot in the end of the thread. When the gathering is finished, cut the thread without fastening, leaving it longer than the space in which the gathers are to fit. Make a knot in the end of the thread.



METHOD OF OVERHANDING

Overhanding: This stitch will be used in making the pocket on the apron. Overhanding is used in sewing together two selvedge edges or two creased folds of cloth. It consists of tiny, slanting stitches taken over the two edges, beginning at the right and sewing toward the left.

Practice making these stitches on pieces of cloth, learning how to hold the cloth correctly.

REVIEW QUESTIONS

1. Why is a sewing-apron useful?
2. Describe lawn. For what purposes is it used?

3. Describe dimity.
4. What is barred dimity?
5. Do dimity and lawn launder well?
6. Why do we like lawn and dimity for making aprons?
7. Does gingham launder well?
8. Which of the three materials rumples least?
9. How is a hem made? For what is it used?
10. Why is gathering used?
11. For what is basting used?
12. When may overhanding be used?

A PIECE OF CLOTH

Cloth is a fabric woven of cotton, linen, wool, or silk. The lengthwise threads in the cloth are called the *warp*. The crosswise threads are called the *woof* or filling. The warp is the stronger set of threads. The *selvedge* of cloth is the finished lengthwise edge. It is firmer and more tightly woven than the rest of the cloth, and in wash material is apt to draw up after the cloth is laundered. For this reason it is usually cut from wash material when making a garment, and when not removed is clipped crosswise every few inches to keep it from drawing the edge of the cloth.

Nap is the shaggy substance on the surface of cloth and varies with the different kinds of cloth and the kind of fiber used. The *fiber* is the substance from which the yarns are spun which are woven into cloth. The *four principal fibers* used for making yarns are: cotton, obtained from the seed pod of the cotton plant; linen, obtained from the stems of the flax plant; wool, obtained mainly from the fleece of sheep; and silk, obtained from the cocoon of the silkworm.

Spinning is the twisting together of fiber to form yarns. *Weaving* is the process of interlacing two sets of yarns together so that they form cloth. Perhaps you have made paper mats by weaving. The machine on which the weaving of cloth is done is called the loom. Spinning and weaving were done in the home by our grandmothers, who made the cloth used by the family, but now fabrics used for clothing and household textiles are made in the factory. Very fine machinery is used, and every piece of cloth that we buy has gone through numerous processes in the factory before it is sold in the store.

LABORATORY EXERCISES

MAKING THE APRON

Textile study: Examine samples of cotton cloth. Pull out both warp and woof threads. Is there a difference in the size? Which is the more difficult to break? Pull the yarn in pieces. What is left? Examine the selvedge. Tear a piece of gingham. What happens to the edge? Would it be best to tear or cut the edge that is to be hemmed or gathered?

Material: Use white cross-barred dimity. The amount of material needed is the desired length of the apron plus 8½ inches. Thread suitable for material. Needles suitable for thread. Button. Heavy cotton floss.

Making the apron: Take your waist measure, being sure that you do not pull the tape-line too tight. Add two inches to this measure and you will then have the necessary length of the band for the apron. Measure along the selvedge of the cloth to see if the length is as long as, or longer than, the required band length. Cut off the selvedges, making the edges even. Straighten both ends of the material. This is done by pulling out a woof thread and cutting on the open line left after drawing out the thread. Always pull out a woof thread which extends clear across the cloth.

For the band, cut off a piece 2½ inches wide down the lengthwise side of the material. Draw a thread to follow in cutting.

Turn a hem, ¼ inch wide, towards the right side of the material, down each lengthwise edge of the apron. Baste and hem by hand. Across the bottom of the apron make a half-inch hem, turning it toward the right side. Baste. This hem is to be feather-stitched later.

Gather the top of the apron, running the gathering thread ¼ inch from the edge of material. Take your band material and, if it is too long, cut it off until it is the required length. If it is too short, perhaps some one using the same material as you are using will have a piece of band material left, and you can sew this on the end of your band, using fine running-stitches. Be sure when you put the band on the apron that this seam is inside the belt.

Find the middle of the top of the apron and the middle of the band. Pin these two points together, placing the right side of the band against the right side of the apron. Measure seven inches from the middle of the band toward each end of the band. Mark with pins. The gathers are to be made to fit into this space. Pin the sides of the apron to the band at these points. Pull up the gathering thread until the gathers lie evenly in the space. Wrap thread around the pin holding the band and apron together, so that the thread is tight and will not allow the gathers to slip. Distribute the gathers evenly across the space and pin to the band in several places. Baste apron to band, across gathers, with ⅛ inch basting-stitches. Sew together with running-stitches, or stitch by machine.

Begin at the gathers on one side and fold the band in about ¼ inch all the way around to the gathers on the other side. Turn the folded edge down over the gathers so that the fold just covers the gathering stitches. Pin into place carefully. Baste the band together along the open side and across the ends, being sure that the folded edges are even and the corners square. Overhand together. Baste band down on gathers. Hem.

REVIEW QUESTIONS

1. What is cloth?
2. What is meant by spinning? weaving?
3. Name the four principal textile fibers.
4. From what source is each obtained?
5. What is the selvedge on cloth?
6. What should be done with it when making wash garments?
7. What is meant by the nap on cloth?
8. What is a loom?

GINGHAMS

Gingham is a cotton fabric which needs especial study because it is used in such large quantity in this country. There are several kinds of gingham.

Apron gingham is a coarse material made of rather heavy threads woven together somewhat loosely. It shrinks when washed. It is used for making aprons and sometimes for house dresses.

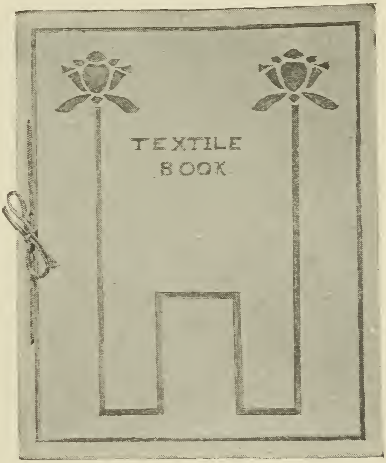
Domestic ginghams are a cheap grade of gingham, usually woven of coarse yarns, and are harsh to the touch when crushed in the hand. These are often used for dresses or for aprons. They are very similar to apron gingham and about the same in price.

French gingham is made of even, smooth yarns firmly woven together. It does not shrink when washed and wears extremely well. French gingham is used for making dresses. It has a smooth finish that is very beautiful, and the cloth is soft when crushed in the hand. It is much more expensive than either apron or domestic ginghams.

Zephyr ginghams are made of very fine yarns and are thinner than other ginghams. They always have heavy threads running through them, making cords or ribs. They are usually made in stripes or plaids. They are used for dresses.

Madras gingham is a rather heavy cloth used for men's shirts and women's tailored shirtwaists.

Kindergarten gingham or *cloth* is a firmly woven, rather heavy material, used for children's rompers. It wears well and is a kind of gingham that has become very popular.



THE COVER OF THE TEXTILE BOOK

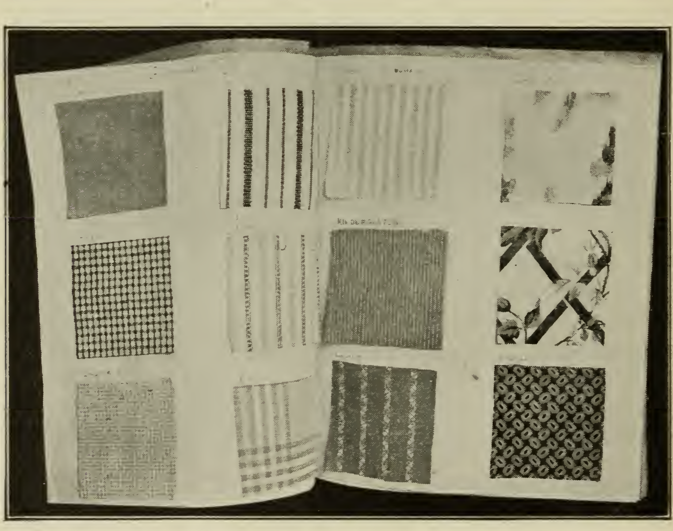
Light green paper, with dark green design in water color; tied with a green cord.

Scotch ginghams are very fine quality ginghams usually made in plaid designs — the designs being copies of the Scotch Highlanders' plaids, thereby giving the cloth its name. It is an expensive gingham, used for dresses.

Chambray is a gingham that is always woven with a colored warp and a white woof. It is never woven in designs but has the appearance of a plain color. It is used for dresses and aprons.

All gingham is colored alike on both sides. This is because the yarn is dyed before the cloth is woven. When cloth is dyed in this way it holds its color. This is why gingham usually launders well.

Gingham is woven with a plain weave, that is, over one thread, under one thread, over and under across the cloth. The next row is woven over the thread that was under in the first row, and under the thread that was over, and so on across the cloth. The third row is made like the first row.



A PAGE IN THE TEXTILE BOOK

Showing samples of different ginghams.

Most girls wear gingham dresses, and it is well to know the different kinds that may be purchased.

HOME PROBLEMS AND QUESTIONS

How many kinds of gingham scraps can you find at home? Keep them for the Textile Book. What is the price per yard of the following ginghams: Domestic, Apron, Chambray and Madras? Do your local stores carry French ginghams? If so, what is the price? Do ginghams cost more than they did two years ago? Bring samples to school.

LABORATORY EXERCISES

MAKING THE APRON (*Continued*)

Textile study: Make a Textile Book by using white sheets of paper for the leaves and a colored or brown-paper cover. Decorate the cover as desired. Cut the lawn, dimity and gingham samples equal in size. Paste each in the book by one edge, so that the samples can be examined on both sides. Under each sample place the name of the material. As other materials are studied they can be added to the book.

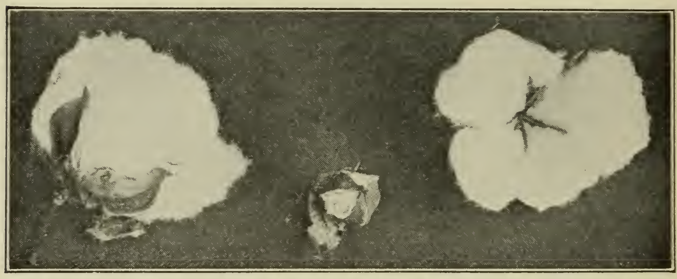
Continue work on apron.

REVIEW QUESTIONS

1. Name the kinds of gingham mentioned in the lesson. Describe each.
2. Which of them are used for dresses? for aprons? for children's clothes?
3. Why does gingham hold its color well?
4. In what designs is gingham made?
5. What kind of weave is used in making gingham?
6. What is the price of the cheaper ginghams? of the more expensive?
7. Is all gingham of the same width?
8. How will a knowledge of ginghams be of value to us?

COTTON

More clothing is made from cotton than from any other fiber. Besides the many kinds of cloth used for dresses, waists, aprons and underclothing, there are stockings, gloves, knitted underwear, laces and embroideries which are made from cotton. Thread for sewing, crocheting and embroidering is made from cotton. Absorbent cotton is used by doctors, and gun cotton is used for explosives.



Cotton Bolls

Cotton is grown in the Southern States. Texas produces more cotton than any other state. The principal countries growing cotton besides the United States are Brazil, India and Egypt. There are a great many different varieties of cotton.

The cotton seeds are planted in the early spring. The crop begins to ripen in July and continues to do so until November or sometimes December. *Cotton fiber* is obtained from the cotton bolls, or seed pods, of the cotton plant. The outside of the cotton boll is brown, but when it is fully ripe the brown covering breaks and a white fluffy mass appears; this is the cotton fiber, and it clings to the seeds. The cotton is ready for picking when it reaches this stage.

Men, women and children go through the fields picking the cotton from the bolls by hand and placing it in bags or baskets. The cotton is then sent to the gin house where the fibers are separated from the seeds. Formerly the seeds were pulled from the fiber by hand, and it took one person a whole day to separate one pound; but in 1793 Eli Whitney invented a machine called a saw gin which separated the fibers from the seeds. This machine, now known as the cotton gin, made it possible to do much more work in one day than could be done by hand. All our cotton to-day is separated by machinery and the process is called "ginning."

The *oil* from the seeds is used in making salad oil, cooking fats, soaps and candles, and the cake left after the oil is pressed out is used for feeding cattle and making fertilizer.

The cotton fiber is pressed into *bales* which are covered with cloth and bound with iron bands. It is then ready for shipping. Cotton bales in the United States weigh about 500 pounds.

LABORATORY EXERCISES

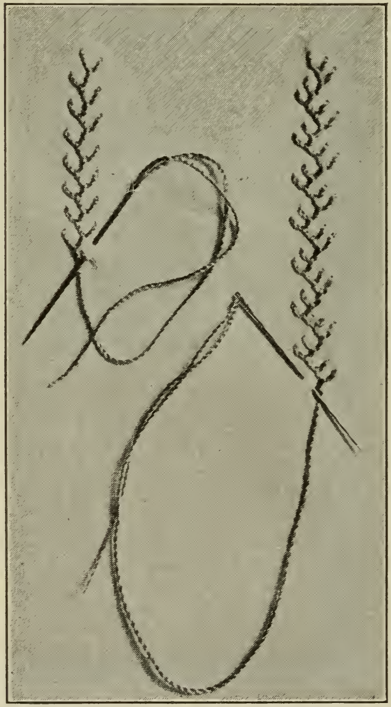
MAKING THE APRON (*Continued*)

Textile study: If possible, secure some cotton bolls to examine. Observe how the seeds and fiber are joined. Separate the fiber from the seed. Place a fiber under a microscope, if there is one available, to see how it looks.

STITCHES TO USE ON THE APRON

Feather-stitching: This is a stitch used for decoration. On the apron it will be used to fasten the hem and to make the divisions in the pocket, as well as for decoration.

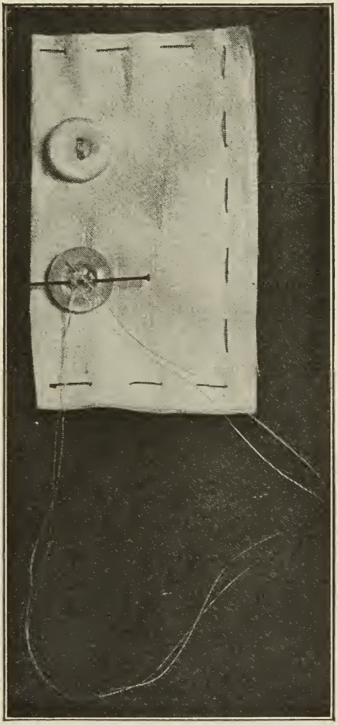
Place the work over the left forefinger and hold it with the thumb. Start with the knot in the thread on the wrong side and at the end farthest from you. Work towards you. Place the needle as shown in the picture, holding the loop of thread down with the thumb of the left hand. A stitch is made on one side of the middle line, slanting the needle toward the line, and then on the other side of the middle line, pointing toward the line. The feather-stitch may be varied by making two or three stitches on one side before crossing to the other side of the line.



Position of the Needle in Feather-stitching

The aim in feather-stitching is to do it evenly. Practice making the stitch on a piece of $\frac{1}{8}$ inch checked gingham. When feather-stitching the apron, perhaps you will need to run a basting thread to mark the "middle line."

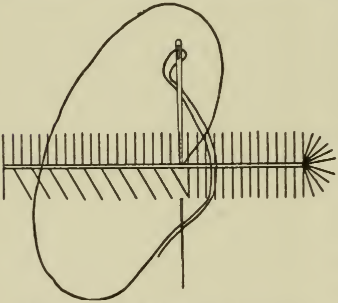
Buttons and buttonholes: The apron band should have a button and buttonhole so that the apron may be put on easily. Sew on the button, using one not more than ½ inch in diameter. The button is sewed on in the following manner. Use a double thread in the needle. Find the middle of the width of the belt, one half inch from the end; at this point begin with the knot in the end of the thread on the right side of the belt; run the needle through a hole in the button, place a pin over the top of the button and sew over it; bring the needle down through the opposite hole in the button and through the cloth to the wrong side, then up through the first hole, and repeat the process three or four times. Remove the pin and wind the thread around the stitches under the button, run the needle through to the wrong side, and fasten with two or three stitches, one over the other.



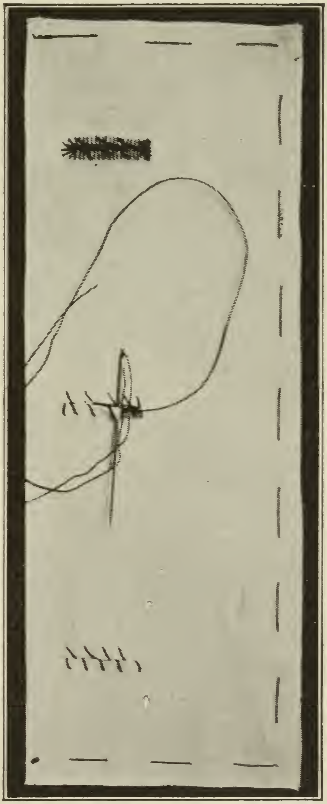
METHOD OF SEWING ON BUTTON

Measure exactly where the buttonhole should be placed, and mark with a pin. The buttonhole should be one half inch from the end of the belt, cut lengthwise of the belt, and just large enough to slip over the button easily. The buttonhole may be cut with the buttonhole scissors, or by folding the material across the point where the middle of the buttonhole is to be and cutting through the four thicknesses of cloth from the fold, a distance of one half the length of the buttonhole desired. Cut the buttonhole on a thread of the material.

The buttonhole must first be overcast. *Overcasting* is much like overhanding, except that the stitches are deeper and farther apart and the work is done from left to right. It is used to keep edges from raveling. Use a thread without a knot, and overcast the two sides of the buttonhole, beginning at the end farthest from the end of the belt. Do not cut or fasten the thread when the overcasting is finished, but begin at the same point to make the buttonhole-stitch. Hold the material between the thumb and first finger of the left hand, with the buttonhole running parallel with the first finger. Place the needle and thread in the position shown in the illustration, pull the needle through, drawing it at right angles to and toward the cut edge of the buttonhole. A small loop or knot called a "purl" will be formed on the edge of the buttonhole. This prevents the edge of the buttonhole from wearing out or losing its shape. Continue with the buttonhole-stitch, placing the stitches close together until the end is reached. This is the end nearest the belt end. To finish this end, continue making the buttonhole-


METHOD OF MAKING BUTTONHOLE-STITCH

stitch around the end, letting the purls all come together at one point. It takes about five stitches to do this, and when it is finished the needle should be in a position to continue the buttonhole-stitch down the second side. This is called a "fan" end. Turn the buttonhole so that the unfinished side is in the right position for making the buttonhole-stitch. Continue the buttonhole-stitch until the other end is reached. This end is to be finished with a "bar." This is made by taking two or three stitches across the end and extending them the width of the buttonhole-stitches. The bar is finished by making the *blanket-stitch* over these threads and through the cloth. This stitch is done from left to right, the needle and thread being placed in the position shown in the picture on page 137. Make the stitches close together. Run the needle through to the wrong side and fasten with two or three little stitches, one over the other, being sure that they do not show on the right side. The result should be a perfect buttonhole.



METHOD OF MAKING BUTTONHOLE

Practice making the overcast-stitch, the blanket-stitch and the making of buttonholes. One eighth inch checked gingham is good to use for practice work until the work can be done evenly. Do not make the buttonhole on the apron until you have learned to make a good one. This will require practice.

REVIEW QUESTIONS

1. In what ways is cotton fiber used?
2. Where is cotton grown?
3. Describe the structure of the cotton boll.
4. How is cotton picked?
5. What is ginning?
6. Who invented the first cotton gin? When?
7. How is cotton fiber prepared for market?
8. Name four new stitches that you have learned.
9. Name some other uses for each stitch besides the use on the apron.
10. How does overhanding differ from overcasting?

HOW COTTON CLOTH IS MADE

The cotton bales are shipped to many parts of the world where factories use the cotton in different ways. Some factories make only thread, others make only certain kinds of cotton cloth, such as gingham, while still others may make only underwear and hosiery.

When the bales reach the factory they are opened and the cotton is removed from its wrappings. It is then placed in a machine which blows out the dust and dirt. This machine is called a *picker*. The cotton as it leaves this machine looks like a roll of cotton batting about six feet wide, such as we see used for making bed comforters. This roll is then placed in another machine in which the cotton is cleaned more thoroughly and the fibers are straightened. When it comes from this machine it is in the form of a long, soft rope. This process is called *carding.*

The cotton rope is then passed through a series of machines, each one making the rope smaller in size and twisting it to make it stronger. This is called *spinning.* The thread which is thus spun from the rope, and is to be used in making cloth, is called *yarn.*

The yarn may be *bleached* before it is ready for the loom. Perhaps it is dyed, as in making gingham, or it may be prepared for making mercerized cotton cloth. The yarn is then *sized.* This is a process in which starch or some other material is put into the yarn to make it smoother, so that it will stand the strain of weaving. Have you ever seen any one use beeswax on sewing-thread? It has the same effect as the sizing on the yarn.

The yarn is now ready for the loom. *Cloth* is now made on *looms* run by machinery. Our great-grandmothers made the cloth on hand-looms, which was a very slow process. The first loom run by machinery was invented in 1784 by Edmund Cartwright of England.

In preparing the loom for weaving, the *warp yarns* are wound on a *roller* at the back of the loom and are threaded through the frame of the loom and fastened to the *cloth beam* in front. The *woof yarns,* or filling yarns, are wound on *bobbins* or spools which are fastened into the *shuttle.* In weaving, the shuttle passes back and forth across the warp yarns, weaving under and over them as the design of the cloth requires. In all looms there are devices for separating the warp threads so that the shuttle passes through easily, and other devices for pushing the woof threads tightly together. As the cloth is woven, it is rolled on the beam at the front of the loom.

The cloth, as it comes from the loom, is inspected to see if there are any defects, and the thread-ends are cut off. The cloth may then be bleached, as in making white materials; or perhaps it is dyed, if the yarns were not dyed before weaving. Usually the cloth is starched, and at the last it is stretched and pressed between heavy rollers to give it the smooth finish we like on cotton cloth. It is then wound into *bolts* and is ready for the market.

LABORATORY EXERCISES

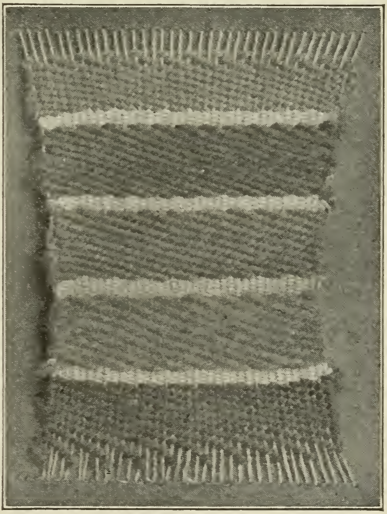
MAKING THE APRON (*Continued*)

Textile study: Examine the threads pulled from a piece of cotton cloth. Can you see the twist in the thread? If there is a small hand-loom at the school, practice weaving on it. Examine the loom. Look at pictures of power-looms. Perhaps there is in the neighborhood a factory doing weaving which the class can visit.

Make a weaving-card by taking a piece of stiff cardboard and using a large darning-needle; make a row of holes one inch from each end, having the holes one fourth inch apart. Take heavy, firmly twisted, white cotton floss, and thread it into a large darning-needle. Make the warp threads by bringing the needle up through a hole at one corner, taking the thread across and down through the opposite hole. Bring the needle up through the next hole, running the thread across the card to the opposite hole, and so on until the card is finished. Fasten the threads well. Use colored yarn for the woof threads. Thread the yarn into the darning-needle, and do one inch of plain weaving on the card. The needle takes the place of what part of the loom?

Save this weaving-card to use later.

Finishing the apron: Make feather-stitching with the cotton floss across the half-inch hem of the apron, doing it on the right side of the hem. This makes the finish for the top of the pocket. Turn up the bottom of the apron eight inches on the wrong side. Baste the hemmed edges evenly together at each side. Overhand these edges together, using very small, even stitches. Take out the basting and turn the pocket over to the right side of the apron. Pin it down evenly to the apron. Measure the width of the pocket and divide it into thirds. Mark each third with a pin. Make a straight line of basting from the top of the pocket to the bottom at each pin, thus marking the thirds. Feather-stitch down these lines, stitching through both thicknesses of material. Sew on the button and make the buttonhole.



THE WEAVING-CARD

REVIEW QUESTIONS

1. For what is the picker machine used in making cotton yarn?
2. What is the next process through which the fiber goes? Explain the process.

3. How is cotton yarn spun?
4. Through what other process does the yarn go before it is ready for the loom?
5. How is the loom prepared for weaving?
6. When was the first power-loom made?
7. Can you explain, after you practice weaving, how the selvedge is made on cloth?
8. How is cotton cloth finished after it leaves the loom?

COTTON MATERIAL COMMONLY USED FOR UNDERWEAR

White cotton materials commonly used for making *underwear* are muslin, long cloth, cambric and nainsook. Cotton crêpe and dimity are sometimes used.

Muslin is a soft cotton fabric that is 36 inches wide. The muslin we use for underclothing is bleached and is a clear white. Sometimes unbleached muslins are used for sheets or pillow-cases. An *unbleached muslin* is cream-colored and is not so well finished as the bleached muslin. It is cheaper in price because it takes less time and work to finish this cloth than the bleached muslin.

Most factory-made cloth is given a *brand name* that can be found stamped on the cloth, or on a label pasted on the outside of the bolt, or on the wrappings of the bolt. The quality of muslin is often known by a brand name. Alpine Rose is a fine quality of muslin suitable for underwear.

Long cloth is a cotton fabric which is much like muslin, but softer and finer. It is 36 to 42 inches wide and comes in different qualities. It is called long cloth because it was first used in making long dresses for babies.

Cambric is a cloth with a smooth glossy finish. It is like muslin or long cloth, but can be distinguished by its gloss. It is 36 inches in width. Berkeley cambric is one grade that is very good for underwear. Lonsdale cambric is another grade often used.

Nainsook is a very soft light-weight material which comes in different qualities, varying in price. It varies in width from 36 to 45 inches. The finer grades are beautifully finished and are used for infants' clothes. Nainsook does not wear so well as muslin or long cloth when made into underwear, but is much used for finer garments.

Cotton crêpe is a soft, crinkled material that does not need to be ironed after washing. It is often used for underwear for this reason. It is 27 to 44 inches in width and comes in different grades. In selecting cotton crêpe for underwear, buy the kinds that are the softest and that do not feel harsh when crushed in the hand.

Cross-barred and *other dimities* are used for underclothing. They do not wear so well as any of the other materials mentioned in this lesson.

When buying muslin, long cloth, cambric, or nainsook, it is more economical to purchase them by the bolt than by the yard. For making the underwear in class we shall use long cloth, because it is soft and easy to handle and yet wears well and launders well.

HOME PROBLEMS AND QUESTIONS

Collect samples of muslins, long cloth, cambric, nainsook and cotton crêpe. Perhaps you cannot find all of them, but some will find what others cannot get, and by dividing samples each can have all in her sample book. What is the price of each material? What is the price of a twelve-yard bolt of long cloth?

See if you can find any one who can tell you about the spinning and weaving done by our grandmothers. Perhaps you can find something in the library about the making of cloth in early times. Write a story about "The Making of Cloth in Early Times" to read in class and to put in your Textile Book.

LABORATORY EXERCISES

PLANNING THE NIGHTGOWN

Textile study: Examine $\frac{1}{4}$ yard samples of each of the cotton materials mentioned in the lesson. Can you tell what each is by looking at it carefully? What kind of weave is used in making them? Compare these samples with the ones brought from home. Does the quality differ? Which are the best materials to use in making underwear?

The pattern to use for the nightgown: Mount on cards, or sheets of paper, pictures showing nightgowns of different patterns. Examine these and decide which would be the easiest to make. The class will make a one-piece kimono nightgown. Can you tell why this style is selected? The pattern should be purchased at the store, and will be bought according to the size of the girl to wear the gown. If you will look in the pattern sheet or book you will see how the sizes for a girl's nightgown are shown. What sizes are needed for the class?

Materials needed for the nightgown: Use long cloth of good grade for the nightgown. To determine the amount needed, measure from the top of the shoulder next to the neck down to the floor, and add three inches to this length. (See Frontispiece.) Multiply this by 2. (If the teacher will buy the material by the bolt and sell it to the children, it can be obtained much cheaper.) Be sure to select long cloth, thirty-six inches in width, as this avoids piecing the sleeves and is not so wide that a strip down the side is wasted. Use Nos. 80 and 90 thread, with Nos. 8 and 9 needles. Basting thread may be used.

The Apron: Finish the apron. Press it carefully. Wear it when you are sewing.

The Finished Sewing-apron

Made of a cross-barred dimity and feather-stitched with light green floss.

REVIEW QUESTIONS

1. Name white cotton materials that are used for making underwear.
2. How can you tell muslin, long cloth and cambric apart?
3. What is unbleached muslin?
4. What does cotton crêpe look like?
5. Is dimity a good material to use for underwear? Why?
6. For what kind of underwear is it best to use nainsook?
7. What is the most economical way to buy long cloth or other underwear material?
8. Explain how the amount of material needed for the nightgown should be determined.
9. How are sizes for girls' nightgowns given in the pattern sheets?
10. How is the size of the thread needed for making the nightgown determined?

THE SEWING-MACHINE

The sewing-machine is used now so commonly that many persons do not know that sewing-machines have been in general use for only about sixty years. The *first sewing-machine* was made by Elias Howe of Spencer, Massachusetts, in 1846. In 1851 Isaac Merritt Singer began making sewing-machines, and "Singer" sewing-machines are still used, but they have been much improved in structure. In 1856 James A. E. Gibbs, a farmer of Virginia, made a machine that used only one thread, and this improved machine is now sold under the name of "Wilcox and Gibbs." Another man who helped improve the very early sewing-machines was Allan B. Wilson, whose ideas were carried out in making the "Wheeler and Wilson" machine. At present there are many makes of sewing-machines on the market.

All sewing had to be done by hand before the invention of the sewing-machine, and the making of a garment was a slow and tedious process. Little girls were taught to sew when they were very young, and many beautiful samples of their sewing have come down to us. One kind of such sewing is the "sampler" made on canvas with elaborate patterns in cross-stitch. Another favorite way of teaching a girl to sew was by having her make a patchwork quilt. While we should be very glad that we do not now have to do all our sewing by hand, yet we must learn how to do good hand-sewing, since there are many places in garment-making where it should be used if the garment is to look well finished.

There are *two types of sewing-machines* that may be purchased:

1 — the double thread, or lock-stitch machine, on which two threads are used. One can stitch on either the right or wrong side of the material with this machine, as the stitching should be alike on both sides. This is the most common type of machine.

2 — the single thread, or chain-stitch machine, on which only one thread is used. One must always stitch on the right side with this machine, as the wrong side of the stitching is in the form of a chain-stitch. When finishing the stitching, the thread must be fastened carefully, as the stitching pulls out very easily. One type of chain-stitch machine is used for sewing together the tops of sugar, flour and salt sacks, but this is a machine with a very different kind of stitch from the one made by the chain-stitch machine used for making garments.

Sewing-machines run by electricity are now used in some homes. These are very helpful when there is a great deal of sewing to be done. Machines in garment factories are usually run by electricity.

A sewing-machine must be studied carefully, so that one may understand how the parts are used and how they should be cleaned and oiled. A sewing-machine will not do good work unless it is in good order.

HOME PROBLEMS AND QUESTIONS

Make a list of the names of different kinds of sewing-machines which you have seen or heard about. What is the price of a good sewing-machine?

LABORATORY EXERCISES

Practice stitching on the machine: Examine the machine to be used and find the following parts on a double-thread machine:

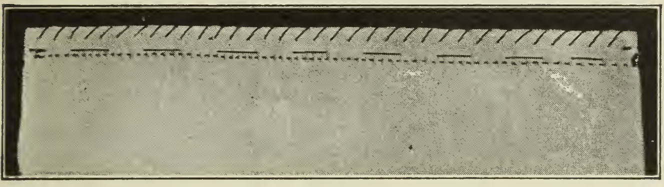
1. Bobbin on which the lower thread is wound.
2. Shuttle which carries the bobbin.
3. Plate upon which the cloth rests in sewing.
4. Feed which pushes the cloth along when stitching.
5. Presser-foot which helps to hold the cloth in place. How is it raised and lowered?
6. Needle-bar which holds the needle. How is the needle fastened into the bar?
7. Spool-holder for holding the upper thread.
8. Bobbin-filler to use in winding the bobbin.
9. Tension, used for regulating the tightness of the stitch.
10. Screw, to regulate the length of the stitch.
11. Treadle, upon which the feet rest.
12. Connecting-rod which attaches the treadle to the machine or "head" on top of the table of the machine.
13. Places for oiling. The book of directions coming with the machine will help you find these places.
14. The method of covering the "head" when it is not in use.

Practice running the machine without threading it until you can work the treadle easily, and until you can hold the cloth under the needle correctly. When you can make a straight row of needle-holes across the cloth you may begin making practice seams.

Be careful to have the needle-bar raised as high as possible before removing the cloth from under the presser-foot, so that you will not bend the needle-point. What are the directions for removing the cloth from the machine, as given in the book of directions?

Seams: A seam is the joining line formed by sewing together two or more pieces of cloth.

A plain seam is made by joining two raw edges with a row of stitching, the stitching being done the desired distance from the edge of the cloth. The raw edges are afterwards trimmed and overcast. A plain seam is used in making dresses and aprons, and sometimes petticoats.



Steps in Making a Plain Seam
1, Basting; 2, Running-stitch; 3, Overcasting.

A French seam is a seam so made that the raw edge of the cloth is covered. Make a very narrow plain seam on the right side of the material, remove the bastings, trim the ravelings from the edge, crease the cloth along the stitching so that the right sides of the cloth are together, baste, and stitch through the two thicknesses of cloth just below the raw edge inside the seam. A French seam is used in making underwear, lingerie dresses and waists.

Machine-made French Seam
Showing first and finished seams.

Practice making a plain seam and a French seam, both by hand and on the machine.

Continue your practice on the sewing-machine at home if possible.

REVIEW QUESTIONS

1. When and by whom was the first sewing-machine made?
2. Name some other men who helped to improve the early sewing-machines.
3. What two types of sewing-machines are there? Which is used in the sewing-room? Which kind do you have at home?
4. Name the principal parts of the "head" of a sewing-machine. For what is each part used?
5. What is the treadle? How is it connected with the other parts of the machine?
6. How is the stitch regulated on the machine?
7. When the sewing is finished how should the machine be cared for?
8. Name four makes of double-thread sewing-machines; name one make of chain-stitch machine.
9. Why is it important to learn to sew well by hand?

OTHER COTTON MATERIALS

There are many other kinds of cotton cloth which may be purchased besides the ones that have been studied. It is well to know the names of some of the most common of these materials, and also for what purpose each is used. Materials that can be purchased at all times in the store are called "standard materials." The ones we are to study are standard materials.

Calico is a cheap grade of cotton cloth which is used for making inexpensive dresses, wrappers and aprons. It is made in figured designs, either on a white or colored background, and is 24 to 36 inches wide. It usually shrinks and fades when washed.

Cheesecloth is a very thin, light-weight, loosely woven cotton cloth, usually 36 inches wide. It is used, like bunting, for decoration, for dust-cloths and for many other purposes. Gauze used in surgery is one kind of cheesecloth.

Canton flannel is a cotton material with a smooth surface on one side and a long soft nap on the other. It was first made to sell in Canton, China, whence came its name. It is 27 to 30 inches wide and is not dyed. It is used for interlinings in coats, and sometimes for underwear.

Cretonne is a rather heavy cotton cloth made in stripes and colored floral designs. It is 36 to 50 inches wide. It is used for draperies, chair covers and cushions, and for bags and other fancy articles. It often fades in the sun and when laundered.

Chintz is a fabric much like cretonne, and is used for the same purposes.

Denim is a heavy, strong cloth used for covering furniture, for pillows and for men's overalls. It is 36 inches wide and comes in various colors.

Flannelette is a cotton cloth with a soft fine nap on both sides. It is often made in stripes or checks, which are printed on a white or colored surface. It is used in making kimonos, wrappers, or winter nightgowns.

Organdie is a sheer, very fine, light-weight material that is given a stiff finish. It is used for dresses and waists. It is made in plain colors, or in figures on a white or colored background. It is 18 to 60 inches wide, and different widths and grades are sold at very different prices.

Percale is a closely woven, firm material used for dresses or aprons. It comes in white or plain colors, or in figures on a white or colored background. It is usually 36 inches wide.

Piqué is a heavy white material used for dresses, vests, neckties and bedspreads. Cords or figures are woven in the cloth when it is made. It is 27 to 40 inches in width.

Sateen is a cotton cloth, woven like satin, and the right side has a smooth, glossy surface. It is used for linings, for petticoats, for covering furniture, for bags and in other ways. It is white, or made in plain colors, or in figures on a white or colored background. It is 27 to 36 inches wide.

HOME PROBLEMS AND QUESTIONS

Find samples of as many cotton materials as possible. Ask the price per yard of the following: calico, percale, organdie, cretonne and sateen.

LABORATORY EXERCISES

MAKING THE NIGHTGOWN

Textile study: Examine samples of each of the materials mentioned in the lesson. Which are plain-weave materials? Use a hand microscope to study the materials. Compare calico and percale; canton flannel and flannelette; organdie and lawn; cretonne and chintz. How can you tell one from the other?

Cutting out the nightgown: Read the description of the pattern given on the envelope. Open the pattern. Study all the groups and rows of different dots, notches, etc., and find what each one means. Does the pattern allow for the seams? Measure from the shoulder at the neck of your pattern to the bottom of the pattern. Is the pattern the right length according to the measurements you made when planning the amount of long cloth needed? If it is too long, turn up the extra length at the bottom; if too short, allow the extra length when cutting the gown.

Follow directions for laying the pattern on the material given on the direction-sheet. Pin securely to cloth. Make an allowance for extra length if needed. How will you do this? Cut out carefully, making all notches in the cloth that are indicated in the pattern. Remove the pattern from the cloth, fold it carefully and put it back in the envelope. Where should the pins be put? Fold together the pieces of cloth that are left and place them in your sewing-box.

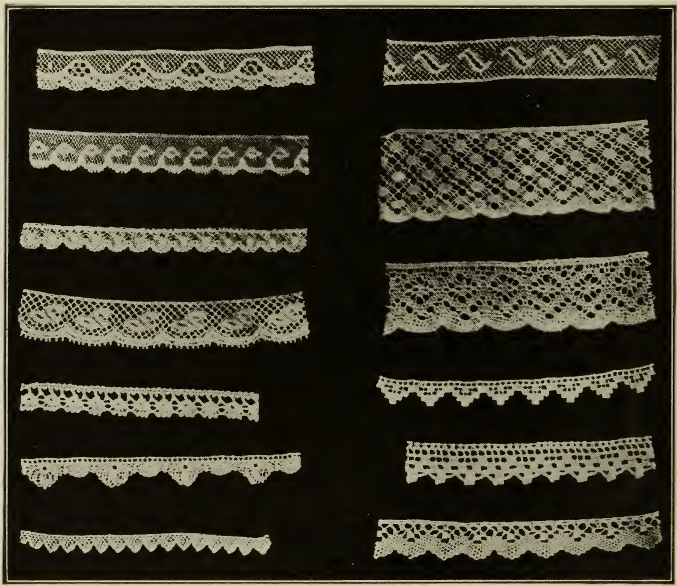
Make French seams in the gown, sewing them on the machine.

REVIEW QUESTIONS

1. Name several cotton materials studied in the lesson.
2. Name the cotton materials that can be used in making dresses; aprons; underwear.
3. What cotton materials are used for draperies?
4. For what kind of dresses should organdie be used? gingham?
5. For what is cheesecloth used?
6. Name any other cotton materials that you know about which have not been studied.
7. Why is it necessary to read the directions with the pattern before cutting a garment?
8. Name different makes of patterns that can be purchased at the stores.

FACTS ABOUT LACE

Lace is often used for decorating underwear. When the right kind is selected it makes a very dainty finish. The lace used with muslin, long cloth, or cambric should be heavier than that used with nainsook, because the weight of the material is different. There are several kinds of lace that may be used for underwear, and in order to select it wisely one must know (1) the names of the different kinds, (2) the price that must be paid for a good quality, and (3) the points that should be watched in choosing a design that will launder and wear well.



Lace Edgings of Good Design

All lace was originally made by hand, and was very expensive. Now a large part of the lace which we use is made by machine and is much cheaper than the hand-made lace. The *machine lace* is made in the same patterns as the hand-made lace, and the better grades are very pretty. The kinds of machine-made lace commonly used for underwear are:

1 — *Valenciennes* of two kinds: German, which has a round mesh, and French, which has a diamond-shaped mesh. Valenciennes laces are suitable to use on nainsook or dimity underwear, on long cloth, or on crêpe. Valenciennes lace is made from cotton thread.

2 — *Torchon* lace is made from linen thread and sometimes from cotton. The cotton torchon is cheap in appearance and does not look so well as the linen after it is laundered. Torchon laces are heavier than valenciennes laces and are suitable to use on muslin, long cloth, or cambric underwear.

3 — *Cluny* lace is a heavier lace than torchon. Some kinds are very heavy and not suitable for underwear, but are used as a finish on such articles as doilies, curtains, or dresser-covers. Cluny laces of the finer kinds may be used on muslin or cambric.

4 — *Irish* lace is a heavy lace, suitable only for long cloth, cambric, or muslin underwear. It is sometimes used with thin materials in making waists or dresses. Perhaps you have seen some one crocheting Irish lace. When fine thread is used, and the work is well done, it is a very pretty lace to use.

5 — *Filet* is another lace sometimes used on underwear. It is a square-mesh lace, which means that the openings between the framework of the lace are square. It comes in both heavy and light-weight varieties, and makes a dainty finish on long cloth, nainsook, or dimity. Filet is another lace often crocheted by women to-day, but most of the lace thus made is too coarse to look well on underwear.

HOME PROBLEMS AND QUESTIONS

Bring to school any samples of lace you can find at home. Look at the picture of the laces and see how many you can recognize.

LABORATORY EXERCISES

MAKING THE NIGHTGOWN (*Continued*)

To make the hems on the gown: The bottom of the gown is to be finished with a three-inch hem. Make a guide, or gauge, to use in turning the hem; baste and stitch on the machine. On the bottom of the sleeves make a $\frac{1}{8}$ inch hem. Baste and hem by hand.

Try on the gown to see if the neck is the size you wish. If not, trim it around the edges. Turn a $\frac{1}{8}$ inch hem around the neck; baste and hem by hand. This hem is harder to make because the neck is curved, and in order to do it well the hem must be basted very carefully with $\frac{1}{8}$ inch basting-stitches. Remove all bastings.

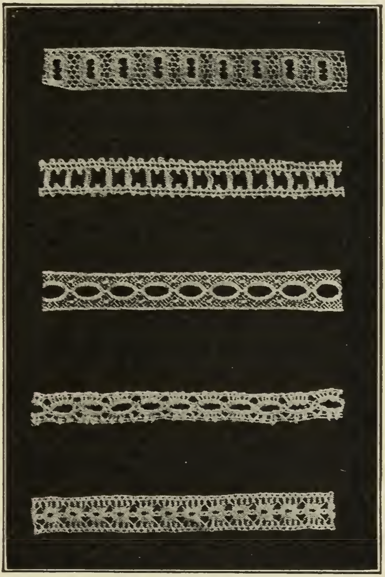
REVIEW QUESTIONS

1. How was lace first made?
2. Name the machine-made laces that may be used for underwear.
3. What kinds of lace are suitable to use on muslin, long cloth, or cambric underwear?
4. What kinds are suitable to use on nainsook underwear?
5. Why is torchon lace not suitable to use with nainsook? valenciennes with muslin?

FACTS ABOUT LACE (*Continued*)

Lace edging is made with one straight edge and one scalloped edge.

Lace insertion is made with two straight edges, and is used between two edges of cloth, between two strips of lace edging or insertion, or with beading. There are many combinations in which it is used, and different ways in which it may be joined in sewing to other material. Insertion and lace of the same kind come in like patterns, and when both are to be used on a garment, the patterns should be the same.



Good Types of Beading

Beading is made with two straight edges and with openings large enough for ribbon of different sizes to be run through. The openings for the ribbon are of different shapes, — square, round, rectangular, or oval. Beading is made from either linen or cotton thread.

Lace edging, insertion and beading are usually purchased by the yard, unless many yards are to be used, when it is bought by the bolt. It is usually cheaper when bought by the bolt.

The straight side on edging, insertion, or beading should be finished with a strong thread which is not broken at any point. We sew over this thread when overhanding the lace to cloth or other lace, and in order to make a good joining the edge of the lace must be firm.

When selecting any kind of edging, insertion, or beading, see that the pattern is joined together securely, without fine threads that are likely to break in a short time. The best beading is always made with firm, even threads, with the threads forming the openings fastened tightly to the threads forming the edges.

Lace edgings launder best which have the least number of picots used in finishing the scalloped edge. A *picot* is a tiny loop on the edge of the lace scallop.

Edging that is about one half inch wide will make the daintiest finish for the nightgown, as it is to be used with beading. The beading must not be wider than the edging. Too much lace, or lace that is too wide, will spoil the appearance of the gown.

LABORATORY EXERCISES

MAKING THE NIGHTGOWN (*Continued*)

Textile study: Have several samples of linen, torchon and valenciennes lace edging, and of linen and cotton beadings to examine, and let each girl select the piece she likes best for her gown. State why the piece was selected. From these selections, choose the best pieces to use for the gowns. What is the price per yard of each?

The amount of lace needed for the gown: Measure around the bottom of one sleeve and add to this measure four inches. How much will be needed for the two sleeves? Measure around the neck of the gown and add two inches. How much lace will be needed for the neck and sleeves? Add to this amount four inches which you will use in learning to join lace.

Beading is to be used around the neck of the gown. How much will be needed? Add four inches to this amount. Purchase lace edging and beading so that it will be ready to use in class for the next lesson. Be sure that the lace comes in one piece, and that it is not pinned together where two ends are joined on the bolt. Continue work on the nightgown.

REVIEW QUESTIONS

1. How is lace edging made? insertion?
2. How is beading made, and for what is it used?
3. State the things you should observe when buying lace edging; when buying insertion; when buying beading.
4. What is a picot?
5. How are small amounts of lace bought? large amounts? In which way will you buy the lace for your nightgown?

DYEING

Cloth is *dyed in the yarn, in the piece*, or is *printed*. Ginghams are an example of *dyed-in-the-yarn* materials, that is, all the yarn to be used in making cloth has been dyed before it was woven. When cloth is made in this way the color is alike on both sides. If the threads in the material are pulled apart, every thread will be found to have the same color throughout its entire length. Materials dyed in this way are much less apt to fade than when dyed in the piece.

A material that is *dyed in the piece* is first woven and then the piece of cloth is dyed. This is the process used in making such materials as calico or percale. Materials that are dyed in this way often fade badly. When threads are pulled from a dark-colored cloth one can often see spaces on the length of thread that are white, or not so dark in color as the rest of the thread. These spots are where the two threads crossed each other in the cloth and where the dye did not reach the thread; they show that the material was "dyed in the piece."

Either white or colored materials may be "printed" with a design which is stamped on the surface of the cloth. This is done by passing the finished cloth between rollers, one of which stamps the design on the cloth. The design is stamped only on the right side of the cloth. Dimity and lawn are examples of printed materials. Printed materials do not launder well, because the printed design is likely to fade. Sometimes a piece of cloth is dyed in the piece and then printed; as, for example, colored lawns that are figured.

Dark blue calico that has white polka dots is made by first dyeing the piece of material a solid color and then removing the spots with chemicals. The chemicals that are used may weaken the thread in the cloth, and after it is washed several times the spots may become holes because the threads wear out.

All materials that are colored are dyed by one of these methods, whether they are made of cotton, linen, silk, or wool. The dye is taken up by the different fibers in very different ways. Some materials are much harder to dye than others. The textile chemist studies the fibers and the way they will take the dye, and works out the best methods to use.

HOME PROBLEMS AND QUESTIONS

Study the colored cotton samples in your Textile Book and see if you can make a list of six printed materials, two "yarn-dyed" materials and two "dyed-in-the-piece" materials.

LABORATORY EXERCISES

MAKING THE NIGHTGOWN (*Continued*)

To join the ends of lace: Cut a four inch piece off the end of your lace edging. Cut the same from the beading. Divide the lace edging into two pieces. Examine the two ends to be joined. Place the end of one piece over the end of the other piece so that the same parts of the design in the lace are together. Pin them in this position. Cut off the lapped ends of the lace until the lapped part is about one half inch wide. Use a thread without a knot. Begin at the plain edge of the lace and overhand the two edges together; continue overhanding the raw edge of the lace, following the pattern edges carefully; continue across the top of the lap and down the second raw edge. Fasten with two or three stitches, one over the other.

The joining should show just as little as possible, and the stitches used should be very small, but close together so that the lace will not ravel. Always work on the right side.

In joining the beading, follow the directions given for joining the lace edging, and in addition overhand around the inside edge of the lapped openings in the beading.

To sew lace on the nightgown: Overhand the edges of the lace edging and beading together. Do not use a knot in the thread. Find the point where the top of the shoulder strikes the neck of the gown. Begin at this point to sew on the beading. Place the right side of the beading and the right side of the gown together. How can you tell the right side of the beading? Hold the edge of the beading and the edge of the neck together, between the first finger and thumb of the left hand, with the lace next to you. Overhand together, taking small stitches that go through a little of the edge of the cloth and through the small holes in the edge of the lace. The joining of the lace ends should be done after the lace is sewed on the garment.

In putting the lace on the sleeve, begin at the seam. Hold the lace and cloth over the first finger of the left hand between the thumb and second finger, with the lace on top. Overhand. By holding the edging in this way, it is slightly fulled on the edge of the sleeve.

REVIEW QUESTIONS

1. Name three methods of dyeing materials; explain each.
2. How is printing done? Name some printed cotton materials.
3. How can you tell a "dyed-in-the-yarn" material?
4. Which type of dyeing is best to use for materials that are to be laundered a great deal?
5. Why does white-polka-dotted blue calico wear out?

HOW COTTON MATERIALS ARE ADULTERATED

Cotton is the *cheapest fiber* commonly used in making materials for clothing. It is not so hard to select a good cotton material as it is to select a good wool, silk, or linen material, because cotton is not so apt to be adulterated. When we say a *cloth is adulterated* we mean that the fiber has had some cheaper material combined with it, thus making the cloth less expensive and not so good in quality. The material added is called an *adulteration.* For example, a piece of woolen cloth, sold as an "all-wool" material, in which some cotton is used, would be adulterated, and the adulteration would be the cotton.

Since cotton is the cheapest fiber, cotton cloth is not adulterated, but sometimes cotton textiles are made of very poor, weak fiber, and the cloth does not wear well. Sometimes the bleaching and dyeing processes used in manufacturing the cloth will be done carelessly, and the chemicals will weaken the fiber so that the cloth does not wear well. In order *to test the strength* of a cotton material try tearing it lengthwise. If it tears very easily it is of poor grade and not suitable for making into garments. Thin materials, such as lawn, will tear more easily than muslin, and in making such a test this point should be remembered.

Another adulteration used in cotton cloth is *weighting*. Weighting is used to make the cloth seem heavier and firmer than it really is. Many kinds of gums, glues, clays and starches are used for this weighting. After a weighted material has been laundered the true quality of the material can be seen, as the weighting is largely washed out of the cloth. By weaving a material loosely, and adding weighting, a cloth of good appearance can be made, and unless one knows about this method of adulteration, the cloth may seem worth buying. By holding a thin cloth up to the light it is often possible to see the weighting between the threads. In a heavier material the weighting makes the cloth feel harsh, and when it is rubbed between the fingers a fine powder will rise from it. If a heavily weighted material is torn, the weighting can easily be seen as it flies from the cloth. Many cotton materials have small amounts of starch used in the finishing, but when a large quantity is added it becomes an adulteration.

Dotted Swiss is a cotton material in which there are dots embroidered with thread. A good quality of dotted Swiss is expensive. Sometimes dotted Swiss is made with *dots of paste* stuck on the material. When the material is laundered, the dots either disappear or turn a different color from the heat of the iron. If one looks carefully, it is always easy to discover whether the dots are of paste.

Mercerized cotton materials are made from cotton fiber that has been treated with chemicals in such a way that a silky appearance is given to the fiber and to the cloth made from this fiber. Cotton poplin is a mercerized material. Mercerized cotton is stronger than ordinary cotton. The silky gloss does not wash off when the cloth is laundered. Sometimes cotton cloth is starched and pressed until it has a silky appearance, and when so finished is often sold as "mercerized" cotton cloth. This finish comes off in the first laundering. Real mercerized cotton materials are expensive; the imitations may often be found by studying the prices.

LABORATORY EXERCISES

MAKING THE NIGHTGOWN (*Continued*)

Textile study: Have a sample of dotted Swiss to examine. If possible, have one sample finished with paste dots. Test muslin samples for weighting; for strength of material. Have one mercerized cotton material to study.

Continue work on the nightgown.

REVIEW QUESTIONS

1. Which of the commonly used fibers is cheapest?
2. What is an adulteration in cloth? Give an example.
3. What is the adulteration commonly used in cotton materials?

4. Give ways of testing cloth for this adulteration.
5. In what other ways may cotton cloth be made less valuable to use?
6. What is mercerized cotton? How is it imitated?
7. Explain how dotted Swiss is adulterated.

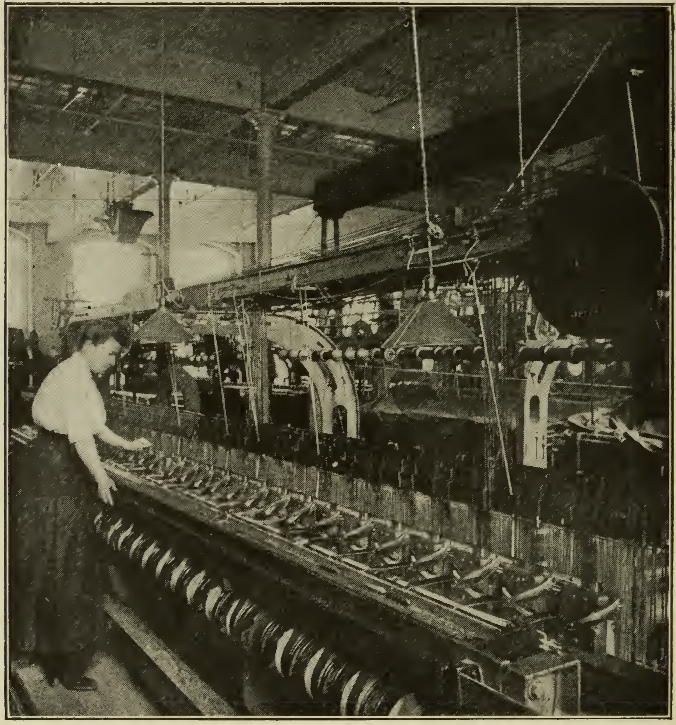
RIBBONS TO USE IN UNDERWEAR

Ribbons of many widths and kinds are to be found in the stores. They are made of *silk, silk and cotton,* or of *artificial silk.* Ribbons are woven on looms. A number of widths of ribbon will be woven, side by side, on the same loom, to save time in manufacture. Ribbons are made in all kinds of designs, and in all colors, and one has a gay assortment to choose from when buying. When finished at the factory, ribbons are wound into round *bolts* with a strip of paper between the layers of ribbon. *Baby ribbon* is sometimes wound on wooden spools. Ribbons may be purchased *by the yard* or *by the bolt.* The number of yards in a bolt varies. Ribbon usually costs less when purchased by the bolt, and when buying a great deal of ribbon to use in underwear it is more economical to buy it in this way.

Ribbon *for underwear* should always be white, or of a very delicate color, such as light pink, or blue. Bright pink, green, yellow, or rose are examples of poor colors to choose. Baby ribbon is the kind commonly used for underwear. It comes in many qualities. Some kinds are sold as "wash" ribbons, which can be laundered. Not all "wash" ribbons launder well, however, and it is always better to remove the ribbon from the beading before laundering a garment. The very cheap baby ribbons are not firmly woven, and when used pull out of shape;

if there is any strain on the ribbon, it may break. Select a ribbon which has a firm edge and holds its shape when pulled lengthwise.

Cotton and *linen tapes* may be used in underwear in place of ribbon. If these are used, they will not have to be removed when the garment is laundered, but they do not give so dainty a finish to the underwear as does the ribbon. They are good to use



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Ribbon Loom Weaving Silk for Neckties

when one has little time to spend on the care of clothing. Sometimes *crocheted cords* are made to use in underwear. These are made from cotton crochet-thread.

A *tape-needle* is used in running ribbon or tape through the beading. The eye of the tape-needle is made either lengthwise or crosswise of the needle, and is wide enough to hold narrow widths of ribbon without crushing them.

Sometimes, in elaborate underwear, wider ribbons than baby ribbons are used. If the garment is finished with *casings,* ribbon may be selected which is the width of the casing. Wide beadings, which will hold ribbons of different widths, can be purchased. The ribbon should be *the width* that will pass through the openings in the beading without being crushed.

LABORATORY EXERCISES

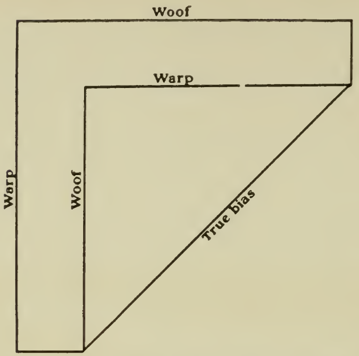
MAKING THE NIGHTGOWN (*Continued*)

Measure the amount of ribbon needed for the nightgown.

Continue work on the nightgown.

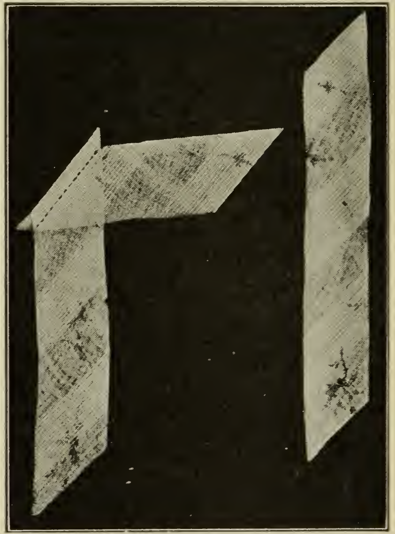
Feather-stitching in patterns: This may be used on the fronts of nightgowns, corset-covers, or combination suits. Make some designs on paper that you think would be pretty to use for feather-stitching the front of a nightgown. Try making one of these on a square of long cloth. What kind of floss should you use?

Bias casings: These are used in place of lace and beading on underwear. Use colored dimity and a square of long cloth for making the practice piece. Use the dimity for making the bias strips. *To cut a true bias,* fold over the corner of the cloth so that the woof threads lie parallel with the warp threads; crease. This crease shows the true bias of the cloth. Cut along this crease. From the cut edge, measure at right angles a depth of two inches. Make a dot on the cloth with a pencil. Use a gauge and continue measuring at different points from the cut edge. With a yardstick draw a pencil line across the cloth, connecting the dots. To make a second strip, measure from the line just made, in the same way that you did from the cut edge. Make as many strips as desired. Cut along the pencil lines.



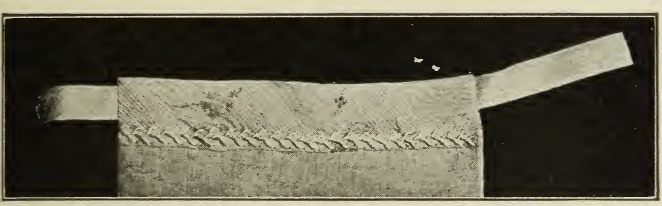
METHOD OF FOLDING CLOTH WHEN CUTTING A TRUE BIAS

To join two bias strips, place the ends, with the right sides together, so that the warp threads are parallel to each other. Sew a plain seam, being careful to have the edges of the bias band even at the joining when the seam is opened.



METHOD OF JOINING TWO BIAS STRIPS
And the "join", after seam is completed.

Fold over both of the cut edges of the bias strip one fourth inch on the wrong side of the cloth. When making this fold, do not stretch the material. Sew the bias strip to one edge of the square of long cloth in a plain seam, sewing in the crease in the dimity, and having the right side of the bias strip and the right side of the long cloth together. Baste the other folded edge down over the seam in the same way that you did the belt on the apron. Hem, being careful that the stitches do not show on the right side. On the right side of the bias strip, as close to the seam edge as possible, make a row of fine feather-stitching. Run ribbon or tape through the casing.



Finished Casing which Might be Used around the Neck of a Nightgown

REVIEW QUESTIONS

1. From what materials are ribbons made?
2. How are ribbons woven?
3. How is ribbon purchased?
4. What colors are suitable for ribbon in underwear?
5. What may be used in place of ribbons in underwear?
6. What is "wash" ribbon?

HOW SILK MATERIALS ARE MADE

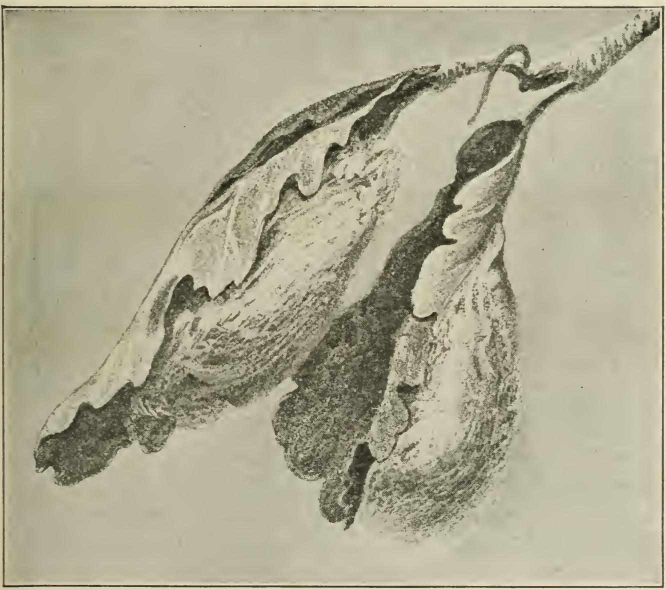
Silk dress materials, ribbons, stockings and underwear are all made from *silk fiber* that comes from the cocoon of the silkworm. *Silk-raising* began hundreds of years ago in China, when an empress discovered how silk cloth could be made from the cocoon of the silkworm. Most of our silk fiber comes at the present time from China, Japan, Italy and France. Little silk is produced in the United States, because labor is much more expensive than in the other countries, and this makes the silk cost more.

The *silkworms* come from eggs that are laid by a moth. The little worm feeds on mulberry leaves and grows very rapidly. When the worm is full grown, it is three inches long. It then begins to spin its cocoon, which it fastens to twigs. As it moves its head back and forth, it throws out two tiny streams of thick, sticky fluid, one from each side of its head. As the fluid comes into the air it hardens and cements the silk fiber of the cocoon. It takes three days for the worm to complete the cocoon. After the first day the worm cannot be seen, but it can be heard working within.

SILKWORM

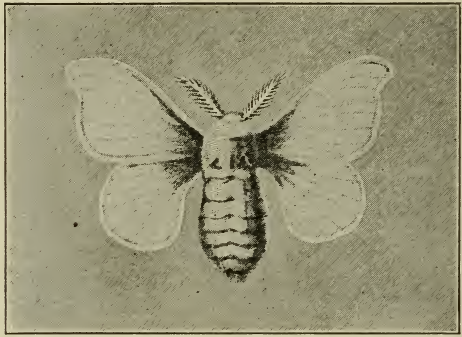
In order to produce all the raw silk needed, silkworms are grown in nurseries which are specially built for this purpose. Some silk is made from the fiber obtained from the cocoon of the wild silkworm and is called "wild silk."

During the fifteen to twenty days after the silkworm has made its cocoon, it changes from a worm to a moth. This *moth* then moistens the end of the cocoon and breaks its way out. In order to keep the moth from coming through the end of the cocoon and thus *breaking the silk fiber*, the cocoons are heated so hot that the moths are killed. A certain number are allowed to come out, however, so that they can lay the eggs to produce a new lot of silkworms.



Silk Cocoons

After this heating process the silk is ready for *reeling*. This is the process of winding the fiber from the cocoon. The cocoons are placed in basins of hot water to soften the gummy substance on the fiber. Then four or five ends of fiber are started from as many cocoons, and are reeled or wound off together. This must be done very carefully. The silk fiber, as it comes from the cocoon, is 300 to 1400 yards in length, and is very fine and strong. The fiber, as it is reeled from the cocoon, is known as "raw silk." The raw silk is made into bales weighing from 100 to 160 pounds, and is then ready to go to the manufacturer.



SILK MOTH

LABORATORY EXERCISES

MAKING THE NIGHTGOWN (*Continued*)

Continue work on the nightgown.

HOW SILK MATERIALS ARE MADE (*Continued*)

A great quantity of raw silk is brought to the United States to be manufactured into cloth, ribbons and other articles. Most of the *silk factories* are in New Jersey, Connecticut, New York and Pennsylvania.

When the bales reach the factory in this country the bundles, or hanks of yarn which make up the bale, are first sent to the throwster. The throwster puts the hanks of silk to soak in order to remove more of the gummy substance from the fiber; then the skeins are placed on reels, and the silk is wound

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WEIGHING RAW SILK, JAPAN

from the reel on to spools. The spools are then placed in a machine which winds and twists together two or more strands from the spools so that they form one yarn. This yarn is to be used for warp threads on the loom and is called "organzine." The yarn to be used for woof is not so good a quality of silk and is only loosely twisted. It is called "tram."

Silk is *dyed* in the yarn or in the piece. The best grades of silk cloth are dyed in the yarn. In order to dye the silk, the gum must be removed from the fiber. This is done by boiling the silk yarn, after which it is known as *boiled-off silk.* This gum makes up one fourth of the weight of the silk. Some manufacturers, in order to make up this loss in weight, dip the silk in some material, such as chloride of tin, which the yarn absorbs until it often weighs twice or four times as much as the boiled-off silk. This material added to silk is called *weighting.* This weighting causes silk fiber to crack on creases when worn, or to rot and crumble, which often happens to silk garments when they are hung away in closets for long periods. Black silks are weighted more often than the light-colored silks.

In *weaving* silks many beautiful patterns are made by the use of the *Jacquard harness.* This is a device on the loom which controls and regulates the warp threads in the weaving so that the pattern is woven into the cloth. This wonderful machine was invented in 1801 by Joseph Marie Jacquard, a Frenchman.

Sometimes in silks the *patterns* are made by printing, stenciling, or embroidery. *Moiré,* or *watered effects,* are produced on silk cloth or ribbons by running them through engraved rollers that stamp the cloth.

There are a great many processes that may be used in finishing silk materials. Sometimes fifty or more will be used before the material is ready to be sold as finished cloth.

HOME PROBLEMS AND QUESTIONS

Collect as many silk samples as you can to bring to class. Can you find a piece of ribbon or cloth finished in a moiré pattern? Can you find a printed silk material? Can you find one that has been woven with the Jacquard harness on the loom?

LABORATORY EXERCISES

MAKING THE NIGHTGOWN *(Continued)*

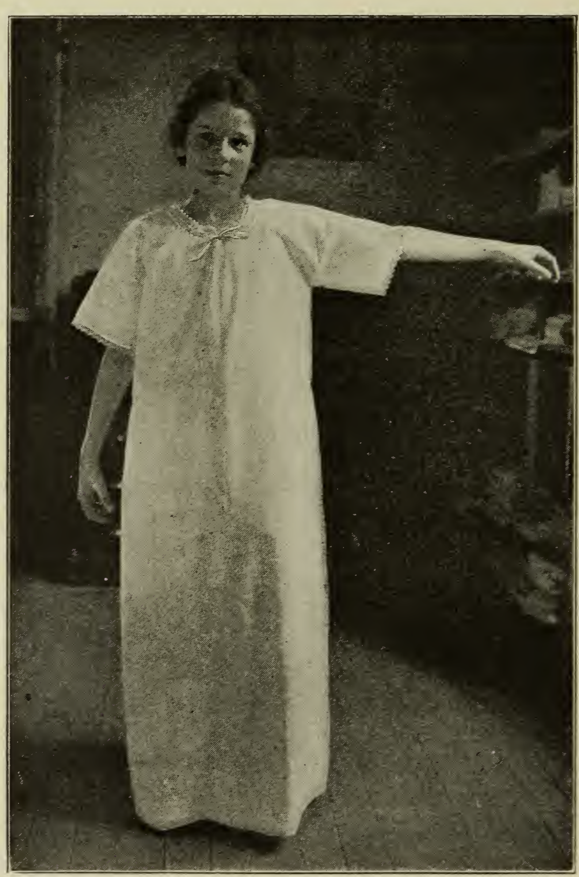
Textile study: Learn to distinguish the following kinds of silk cloth, — chiffon, crêpe de Chine, China silk, pongee, satin, taffeta, velvet. Use samples. Put into your Textile Book samples of as many of these as possible. What is the price per yard of each?

Finish the nightgown: What is the total cost of the nightgown? Make a list showing what each article cost and put this list in your notebook.

REVIEW QUESTIONS

1. Where are most of the silk factories in the United States?
2. What does the throwster do with the silk fiber?
3. What are the warp yarns called? the woof yarns?
4. How do the two differ?
5. How may silk be dyed?
6. What is weighting? What kinds of silk are apt to contain the most weighting?

7. For what is the Jacquard harness used?
8. How is moiré ribbon made?
9. Does silk require much finishing?
10. Which of the silk materials studied would be good to use for dresses? waists? petticoats?
11. When are silk dresses suitably worn?



THE FINISHED NIGHTGOWN

TOWELS

It is necessary that a towel should be soft and that it should absorb or take up water quickly. An all-linen towel does this better than a cotton or cotton-and-linen towel. The *all-linen* towels are the most expensive and for this reason are not always used. The material from which towels are made is called *toweling.* It comes in various widths and in different kinds and qualities. A toweling made of part cotton and part linen is called *union toweling.*

There are several kinds of toweling used in making *kitchen towels. Glass toweling* is a smooth, light-weight material usually made in checks formed by red or blue lines. It is especially good for wiping china and glass ware. Glass toweling made from linen is the best, but the most expensive.

There are two kinds of *crash toweling* used in the kitchen: (1) the heavy crash toweling that is used for drying cooking utensils, and (2) the finer crash toweling used for hand towels. The heavy crash toweling is rough and uneven on the surface, while the finer grades are smoother. Some crash towelings are woven with a red or blue stripe down the lengthwise edge.

Towels to use for the face and hands are usually made of *huckaback* and *damask towelings.* Huckaback is woven so that the surface of the cloth is rough. A rough surface on a towel makes it absorb moisture more readily. Huckaback toweling is made from cotton, and also from linen. Linen huckaback of good quality is a very beautiful material.

Damask toweling is smooth in finish, and the designs woven in the material are often very beautiful. It is sometimes made without a design.

Turkish or bath towels are woven in such a way that there are loops over the surface of the cloth, and this gives them a very rough surface.

Towels may be bought ready-made, or the toweling may be purchased by the yard and the towels made at home. Some of the more expensive huckaback and damask towels are woven with finished designs across the ends. *Guest towels* are narrow, short towels, often finished with hemstitched ends, cross-stitching, embroidery or lace.

LABORATORY EXERCISES

MAKING A TOWEL

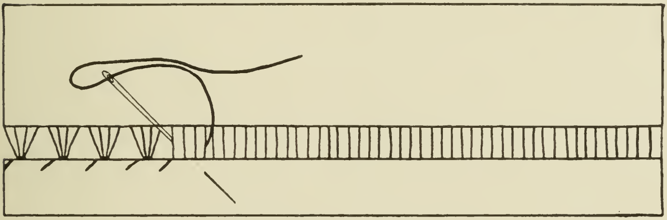
Textile study: Examine samples of glass toweling and crash toweling. Examine samples of linen huckaback and of cotton huckaback. Which do you think best to use for making a hemstitched towel?

Materials needed for making the towel:

¾ yard huckaback guest toweling.
No. 60 white cotton thread.
Needles.
Cotton floss for cross-stitch.
Canvas for cross-stitching.

Hemstitching practice: Use a piece of heavy, coarsely woven material upon which to practice hemstitching. Straighten the end of the material; measure in 2¼ inches from the end on the selvedge; mark with a pin. Pull out four or five of the woof threads, beginning at the point marked by the pin; be careful to pull the same thread all the way across the cloth. Turn under the raw edge one fourth inch toward the wrong side; turn again to make a hem, bringing the first fold even with the edge of the open space made by the drawn threads; baste the hem very carefully, using one fourth inch basting-stitches.

Knot the thread. Hold the cloth so that the hem is held as for hemming. Hide the knot under the fold of the hem, beginning as you would for plain hemming. Throw the thread up and toward the right, away from the hem. Pass the needle under four of the threads, pointing the needle down and toward the hem; pull the needle through. Again pass the needle under the same group of threads in the same way, but this time, before drawing it through, take up a little of the under cloth and also a little of the fold of the hem, making the needle come out between two groups of threads. This ties the group of threads together and also fastens the hem. Continue across practice piece. Fasten the end with two stitches, one over the other.



METHOD OF HEMSTITCHING

Double hemstitching is made by hemstitching along the other side opposite the hem. Practice hemstitching until you can do it easily.

REVIEW QUESTIONS

1. What qualities are necessary for a good towel?
2. Which fiber makes the best toweling?
3. What is glass toweling?
4. What other kinds of toweling are often used in the kitchen?
5. Name two kinds of toweling used for face towels. Which is better to use?

6. Why is it not wise to hemstitch all towels?

7. What is the price per yard of linen huckaback? cotton huckaback?

HOW FLAX IS GROWN

Linen is used in making cloth for dresses, waists, suits, table linen, towels, and many other articles. *Linen fiber* comes from the stem of the *flax plant.* The plant is an erect stalk growing twenty to forty inches high, with stems branching near the top. It has narrow, lance-shaped leaves and a tiny blue flower. There are many varieties of flax.

Flax has been grown for at least five thousand years in Egypt. To-day Ireland and Belgium produce the best quality of linen fiber. Russia has produced a large part of the world's supply of linen fiber, but it is of a coarse quality. Flax is also grown in France, Egypt, Italy and Holland. Some flax is grown in the United States and Canada, but it produces a coarse fiber suitable only for making coarse materials.

When flax is to be *used for fiber,* the seed is sown thickly on the ground. This crowding of the plants keeps the main stalks straight and unbroken, and prevents branching. This slender type of plant is the best from which to get the fiber to use in making linen.

Flax is also grown for the seed it produces. *Flaxseed* is used in making linseed oil for paints and varnishes, linoleums and oilcloths. The pressed linseed cake is used as feed for cattle. Flaxseed is also used for poultices and in flaxseed tea. Perhaps you have seen it used in this way.

The flax plant requires great care during its growth. In Europe this work is done by women and children who weed the tiny plants, going through the fields on their hands and knees. When the flax is ready to harvest, instead of cutting it with a machine as we do wheat or oats, they pull the plants up by hand. The stalks are laid with the roots together and are bound into bundles. These bundles are stacked or hung up to dry.

Harvesting Flax by Hand

When the flax is dried, the next process through which it passes is *rippling*. This is a process in which the seeds and dried leaves are removed from the end of the stalk. When it is done by hand, two men sit, one on each end of a long bench, in the middle of which is a large comb which has teeth about eighteen inches long, placed a short distance apart. The flax is drawn through this comb, and the leaves and seeds drop on a sheet beneath the bench. Machines with revolving cylinders are now used for this work. The flax stalks are then tied in bundles and are ready for storage or for the next process.

LABORATORY EXERCISES

MAKING THE TOWEL (*Continued*)

Straighten the ends of the toweling. Make a hem an inch wide at each end. How far from the end must the threads be drawn for hemstitching in making a hem this width? Baste hems; hemstitch both ends of towel.

REVIEW QUESTIONS

1. From what plant is linen fiber obtained?
2. Where is flax grown?
3. Which countries produce the best flax fiber? the greatest amount?
4. Did Russia and Belgium produce as much flax as usual in 1915–18? Why?
5. Describe the flax plant; its care during growth.
6. How is flax harvested?
7. What is the first process through which it goes after drying?
8. For what is flaxseed used?

THE MAKING OF LINEN CLOTH

The next process through which the flax goes is called *retting*. This is a very important one and it must be carefully done. Retting is the process by which the outside woody portions of the stem are decomposed or rotted so that they can be removed from the inner part, or flax fiber, which is to be used in making cloth.

Retting is sometimes done by placing the flax fiber on the ground and allowing the dew, the sun and the rain to rot the outer layers of the stalk;

or steam and chemicals are used; or the flax fiber may be placed in running water or in pools, where it is left until the outer layers are rotted. The last process produces the best flax fiber.

The water in the river Lys in Belgium seems especially good for this purpose, and some of the best colored, finest and strongest fiber is produced in this region. The flax bundles are packed into a large wooden crate, lined with burlap to keep the dirt out, and the fiber is covered over the top with fresh straw. The crate is then sunk to a certain depth in the water and weighted down with stones and sod. It takes fourteen or fifteen days for the retting when done in this way, and during this time the odor from the flax is very disagreeable and the water is often poisonous to fish and cattle.

RETTING FLAX
Flax ponds being filled.

The flax fiber is now put through the processes of *breaking* and *scutching,* during which the outer woody portions are removed from the fiber and the fiber is divided into *line*, the long fiber, and *tow*, the short pieces that have been broken off during these cleaning processes.

Hackling is a process through which the "line" passes for the purpose of combing, splitting and further separating the fiber into short and long lengths. Other processes follow for cleaning and sorting the fiber, until the linen fiber is at last ready for spinning and weaving. The best materials are made from the "line", while the "tow" is used in cheaper fabrics.

Linen cloth is *bleached* either by the use of chemicals, or by laying it on the grass and allowing the sun and dew to make it white. The last is a slow process, but the linen cloth bleached in this way is always strongest. In Ireland a great deal of linen cloth is bleached in this way.

Colored linen fabrics are made for dresses and suits, but they fade easily in the sun and in laundering. Sometimes it is worth while to have a faded dress or suit re-dyed, since linen cloth of good quality is very strong and should wear well.

HOME PROBLEMS AND QUESTIONS

Collect at home any samples of linen materials which you can find. Perhaps some one has a piece of hand-woven linen which you can borrow to bring to class.

If possible, bring some flax seeds to school. Perhaps these can be planted in the spring, or in a box in the schoolroom, so that you can see how the plant looks when it grows. Have you ever seen flax growing?

LABORATORY EXERCISES

MAKING THE TOWEL (*Continued*)

Textile study: Obtain from some of the linen factories a school exhibit showing the various processes through which the flax goes before it is made into cloth. Compare the cotton fiber and linen fiber. Examine each under the microscope. How do they differ in appearance? Write a story on " How Linen Cloth is Made " to read in class and to put into your Textile Book.

Continue work on the towel.

REVIEW QUESTIONS

1. Explain the process of retting.
2. Name other processes through which flax fiber goes before it is ready for spinning and weaving.
3. What is the "line"? the "tow"? How is each used?
4. How is linen cloth bleached?
5. Does colored linen hold its color well?
6. Why is linen huckaback more expensive than cotton huckaback?

SOME LINEN FABRICS

The *huckaback* used in the towel made in class is one of the linen fabrics that has been studied. *Crash toweling* also is made from linen as well as from cotton. *Russian crash* is a heavy, coarse linen often used for porch cushions and for table-covers or runners. It is an unbleached material which comes in widths from eighteen to thirty-six inches, and varies very much in price.

The best damask for toweling, we have learned, is made from linen. *Damask* is also the name given to the linen material from which tablecloths and napkins are made. Table-linen or damask is made in many qualities, varying very much in price. It is a beautiful material when made of fine linen fiber and woven in good designs. Table damask of good quality is expensive, but it wears well and is worth buying. Sometimes tablecloths are woven with a border design on each of the four sides of the cloth, and the tablecloth is then called a *pattern cloth.* Table-linen sold by the yard has the border design running only along the sides. *Napkins* are always woven so that each has a finished border design around the four sides, but they are sold, six to twelve, in one long strip and must be cut apart before hemming.

Linen damask is imitated in cotton, and tablecloths sold as *cotton damask* can be purchased at a much cheaper price than the linen damask. Cotton damask does not have the glossy, smooth finish that linen damask has, after it is washed, and stains are much harder to remove than from the linen.

Sheeting, the material from which sheets are made, is sometimes made of linen. Linen sheets are expensive; cotton sheeting is generally used.

The term "*household linen*" means the sheets, pillow-cases, tablecloths, napkins, doilies and towels used in the household. Many of the articles, however, may be made from cotton rather than linen.

Handkerchief linen is a fine sheer linen used for handkerchiefs, dresses and waists. *Linen lawn* and *linen cambric* are other very thin, fine linen materials used for handkerchiefs, dresses and waists. A great many handkerchiefs are now made from cotton, but the cloth looks so much like linen that it is difficult to tell them apart when selecting them in the store.

Dress linens are heavy materials used for dresses and suits. When they are dyed, they are usually in plain colors. Sometimes linen sheeting is used for making white dresses.

When we buy an all-linen material, it is expensive. Many of our cotton materials are finished like linen, but do not wear so well nor retain their finish. It is difficult to tell some cotton materials from linen materials, and the purchaser often buys cloth she thinks is "all linen", only to find later that it is all cotton, or part cotton and part linen. There is no certain way to judge an all-linen material in the store.

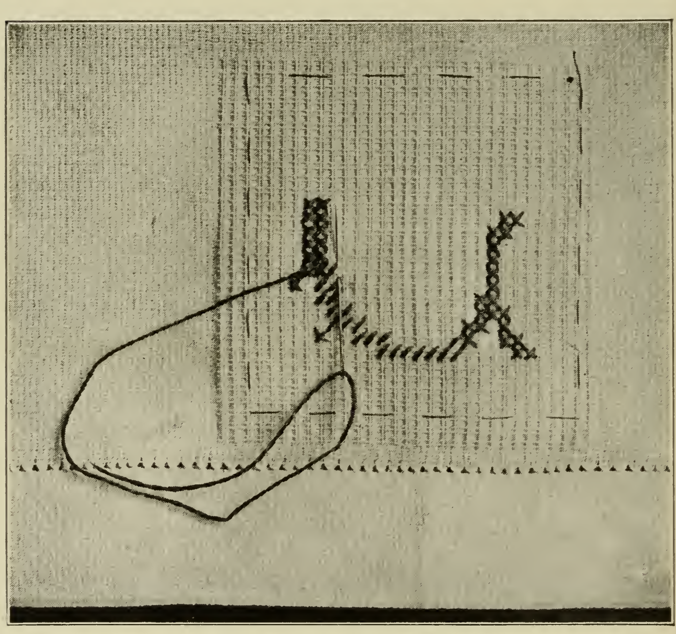
HOME PROBLEMS AND QUESTIONS

Examine the tablecloths used in the school dining room, or at home. How wide are they? How is the design arranged? What patterns are used? Examine the napkins. Examine a piece of cotton damask and of linen damask used for tablecloths. From among the samples found at home choose the ones for the Textile Book. What is the price by the yard, and the width of each?

LABORATORY EXERCISES

MAKING THE TOWEL (*Continued*)

Cross-stitching initials or a design on the towel: Do you remember the sampler about which we talked in one of the earlier lessons? This sampler was made with cross-stitch. Cross-stitching is made over canvas which has been basted to the cloth upon which the design is to be produced. Patterns for cross-stitch can be purchased. These patterns show the number and arrangement of crosses necessary to use in making the design, and are often printed in the color to be used. The patterns can be purchased in dry-goods stores, at the pattern departments, or at stores handling art needlework supplies. Usually the canvas can be purchased at the latter place. Perhaps you can make a design in the drawing class.

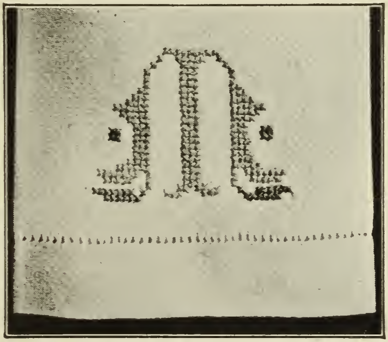


Cross-stitching

Canvas basted to towel used as guide for stitches.

Find the middle of the towel end and baste a piece of canvas, large enough for the design, on the right side of the towel at this middle point, as far from the hemstitching as desired — probably about one inch — so that the warp threads of the toweling and the warp threads of the canvas are parallel.

The cross-stitch is made by crossing two slanting stitches. Make all the slanting stitches that run in one line and are of the same color, first in one direction and then back, thus making the crosses. Place the needle as illustrated in the drawing. The wrong side must be made as neat as possible by using few knots and by doing the work in rows. When the pattern is completed, remove the bastings and pull out the canvas threads, one at a time. Practice cross-stitching before putting the design on the towel. Cotton embroidery floss that washes well should be selected for cross-stitching the towel. Select a very simple pattern or plain initials for the cross-stitching.



Initial Done in Cross-stitch

REVIEW QUESTIONS

1. Name three linen materials used for toweling.
2. Name three linen materials used for handkerchiefs.
3. Name linen materials used for waists; for dresses.
4. From what materials are tablecloths made?
5. How are napkins purchased when they are to be hemmed at home?
6. What is sheeting? What kinds may be bought?
7. In what ways may towel ends be decorated?
8. Is it wise to put cross-stitch on "everyday" towels? Why?

WOOL — WHERE IT COMES FROM

Many of the garments worn in winter are made from wool, which is an animal fiber. A large part of our *wool fiber* comes from sheep. Some wool comes from the camel, the angora goat, the llama and the alpaca. In the United States, sheep are raised in great numbers in the Western States. Montana, Oregon, Idaho and Wyoming are the principal sheep-raising States. England, Australia, Canada, South America and parts of Africa, Spain and Germany also produce wool.

The sheep are sheared in April or May. By this process the wool is clipped from the body of the sheep and removed in one piece which is called the *fleece.* The *shearing* may be done by hand with large shears made for the purpose, or machine clippers may be used when there are large numbers of sheep to shear. The fleeces are tied into bundles. When many fleeces are sent to market from one farm, or ranch, they are put into sacks which hold about 400 pounds each.

Wool fiber varies from 2½ to 10½ inches in length. *Merino wool* is the finest. Sheep which are well cared for and properly fed produce the best wool.

If you examine a wool fiber under the microscope, you will find the outside of the fiber covered with tiny scales, or *serrations.* These serrations lap over each other in much the same way as do the outside layers of a pine cone. When heat and moisture are applied to the wool fiber, the serrations soften, and if pressure is used they are locked together. This locking together is known as the *felting property* of wool, and because wool has this property it is possible to make from it a good yarn and cloth of close, firm texture.

Besides the making of clothing, wool is used in making carpets, rugs, underwear, stockings, blankets and knitting yarns which are used for shawls, sweaters, caps and mittens.

Wool is often *adulterated* by adding cotton fiber. If cloth is made of cotton and wool fiber, it should be sold as a cotton and wool fabric, and not as "all wool." Because there is not enough wool produced each year to furnish all that is needed, the new wool fiber is mixed, in many cases, with *shoddy*, *mungo* and *extracts*. These materials are the fibers obtained from old wool cloth, knitted wool underwear, and wool stockings which have worn out. When old wool rags are sold to the junk dealer he, in turn, sells many of them to the manufacturers of wool yarns. *Flocks* and *noils* are short waste fibers left from the spinning and finishing processes, and these are sometimes added to wool yarn.

LABORATORY EXERCISES

MAKING THE UNDERSLIP

Look in the pattern book and find a two-piece underslip pattern. How is the size of the pattern stated? Of what materials could the slip be made? How much material thirty-six inches wide does the description of the pattern say will be needed? Measure from the top of your shoulder, next to the neck, down to the bottom of your dress; add four inches to the measurement; multiply this last measurement by two. This will give you the number of inches needed for the slip. How many yards will be needed? Is this the same amount stated in the pattern description as being needed?

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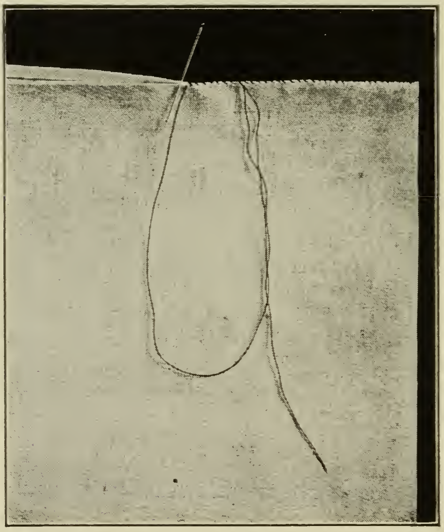
If the ruffle is to be made of the same material as the slip, more material will be needed. Ruffles for underwear are made from crosswise strips of material. In order to know the amount needed, one must know: (1) how wide the ruffle is to be, (2) how wide the hem on the ruffle is to be, (3) how wide the seam is to be, (4) whether any tucks are to be used, and if so (5) what size they are to be, and (6) how wide the slip is around the bottom. The length of the ruffle should be about one and one half times the width around the bottom of the slip.



METHOD OF MAKING A FRENCH HEM

Work out the following problem, using a piece of paper upon which to practice. A ruffle is to be put on a slip that is two yards around the bottom; the hem on the ruffle is to be one inch wide; there are to be three tucks, each one half inch wide, finished; one fourth inch is to be the width of the seam where the ruffle is gathered; the ruffle, when finished, is to be six inches wide.

Materials to be brought to class next time:

Two-piece pattern for underslip.
Long cloth — amount required without ruffle.
Thread — Nos. 80 and 90.
Needles.

To make a French hem: Napkins, tablecloths and sometimes towels, are finished with a French hem. This is made in the following way. Fold a plain hem one fourth inch or less in width; baste; turn the right side of the hem back against the right side of the material above the hem; make a crease in the cloth that comes just even with the fold of the hem; overhand along this crease, running the needle through the creased cloth and the fold of the hem, making small stitches close together. When the overhanding is finished, press out the crease, making the hem lie in the same position as a plain hem. Practice making the French hem at school.

At home, hem a napkin or towel, which should be brought to school for inspection when finished.

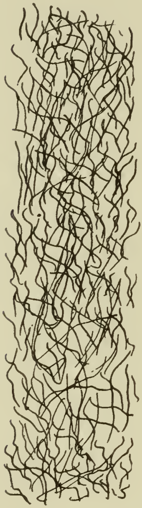
REVIEW QUESTIONS

1. Where is wool fiber obtained?
2. Where is the greatest wool-producing section in the United States?
3. What is the "fleece"?
4. What is meant by the "felting property" of wool?
5. In what ways is wool used?
6. In what way is wool adulterated?
7. What is shoddy? How and why is it used?

HOW CLOTH IS MADE FROM WOOL

When the wool reaches the woolen mill, it is unpacked and sorted. The wool is dirty and greasy, and one fleece contains fiber of several lengths. The oil in the fiber is known as the *yolk*. If you have ever put your hand on the back of a sheep, you know how oily the wool feels. This oil protects the fiber and keeps it soft and elastic. The wool from the head, sides and back of the sheep is finer in quality than that from the belly or shins. The fleece is usually separated into six or seven grades for spinning yarns of different qualities.

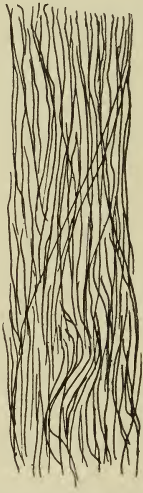
The wool is now ready to be washed, or *scoured*, and this must be done very carefully with soft, warm — not hot — water and soft soap. The wool passes through a series of tanks during this process, and in each tank is pushed back and forth by means of wooden forks which carry it forward.



Construction of Woolen Yarns

The wool fiber is next *dried* in a machine called a "hydro-extractor", and is then beaten into a fluffy mass. All of the oil has been removed during the scouring, but in order to make the wool soft and elastic and better for spinning, olive oil is added to the fiber.

The wool may be cleaned still further by the use of a machine called a *burr-picker*, which takes out any burrs, leaves, or other dirt which the sheep have picked up in the pasture and which did not come out in the scouring.



Construction of Worsted Yarns

There are *two kinds of yarn* made from wool fiber: (1) *worsted* and (2) *woolen*. Worsted yarn is made from wool that has been combed until all the fibers lie parallel before they are twisted into yarn. Worsted yarns are stronger than woolen yarns. They are made from long fiber, the short fiber being removed in combing. Worsted yarn is the more expensive, and is used in making high-grade worsted materials and underwear. Woolen yarn is made from the short fibers, so treated that the fibers are running in every direction when the yarn is ready for weaving. Woolen yarn is more "fuzzy" than worsted yarn. Worsted yarns are used for making materials that are to show the weave very plainly, as in serge, while woolen yarns are used to make cloth with a fuzzy surface, the weave of which does not show distinctly, as in broadcloth.

Wool is *dyed* either in the yarn or in the piece. It dyes very easily. Printed designs and elaborate Jacquard designs are not used so often as in silk and cotton materials.

Wool cloth goes through various *finishing processes*, depending upon the kind of material being made. One of the most interesting of these is *napping*, which is used in making such materials as blankets. This is done by passing the cloth between rollers covered with teasels. The sharp points on the teasel pull up the fiber ends on the surface of the cloth and make a heavy nap. Sometimes this nap is clipped until it is even and shortened. The *short fiber* clipped from the surface is sometimes felted into the back of a poor quality of woolen cloth to make it appear heavier. These short ends often work out as the garment made from such cloth is worn, and sometimes are found in the bottom of pockets, along seams or hems, or between the lining and wool material of a coat. Dress, coat and suit materials of wool must be pressed and wound into bolts to make them ready for the market.

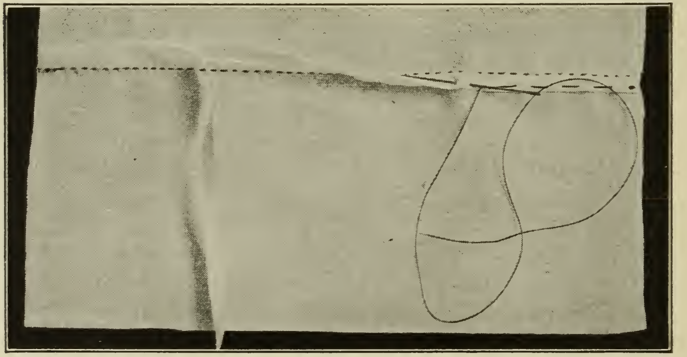
HOME PROBLEMS AND QUESTIONS

Collect as many wool samples as you can to bring to school. Has any one some wool she can bring to school? If the teacher will get a wool exhibit from some of the manufacturing firms, it will be interesting to study.

LABORATORY EXERCISES

MAKING THE UNDERSLIP (*Continued*)

Read the directions on your pattern. Open the pattern and measure the length to find if it needs changing. Lengthen or shorten it in the same way that you did the nightgown. Follow directions for cutting given on the pattern. Make narrow French seams down the sides, sewing on the machine. Use felled seams on the shoulders.



The Construction of a Felled Seam

To make a felled seam: Make a plain seam one fourth inch wide, but do not overcast the edge. Cut off one side of the seam one eighth inch. Fold the wide side down one eighth inch and over the narrow side of the seam. Lay both sides of the seam flat on the cloth with the narrow side under the wider side. Baste to the cloth. This seam may either be hemmed by hand along the fold, or it may be stitched by machine. In making the underslip, hem it down by hand, as it will look daintier and show less. Felled seams are used in making corset-covers, drawers, some kinds of petticoats, and men's shirts.

REVIEW QUESTIONS

1. What is the first process through which the wool goes after it reaches the woolen mill?
2. Of what value is the "yolk" in wool?
3. Explain the process of "scouring."
4. Through what other processes may wool fiber go before it is spun?
5. What kinds of yarn are used in making wool materials?
6. Give the process for making each kind.
7. For what types of material are the different kinds of yarn used?
8. How is wool material dyed?
9. Explain the process of "napping."
10. What is the "fuzz" often found in hems and along seams of wool dresses and coats?

WOOL MATERIALS COMMONLY USED

There are so many kinds of wool cloth that it would be impossible for us to learn the names and to know all of them in one lesson. Wool materials of the best grades are expensive, and the price will indicate something in regard to the quality. There are always a large number of standard wool materials on the market, and in addition many novelty materials appear each year. A *novelty material* is one that is made for only one or two seasons, and while the design or weave is unusual, the price is high and often the quality is poor. It is not a wise plan to buy novelty materials if one is trying to select a material that will wear well for a long period without going out of style.

Serge is one of the commonly used wool materials. There are many types of serge on the market. Serge is made of worsted yarn in a twilled weave. It comes in plain colors, dark blue being one of the favorite colors. It is used for making suits, skirts and dresses. It is forty-two to fifty-four inches wide, and varies much in price.

Cheviot is somewhat like serge. It is heavier and sometimes rougher in finish. It is used for suits and coats. Some cheviots are called "diagonals."

Tweed and *homespun* are two materials used for suits and coats. Both were originally made by hand, but now are made by machinery. In some sections of the Southern States homespun cloth is still made by the mountain people. Homespun is a loose, rough material made of coarse yarn. Tweed was first made in Tweed, Scotland. It is a rough, loosely woven cloth that is usually woven of several shades of yarn, giving a mixed effect with no distinct pattern.

Broadcloth is made from woolen yarns. It is a beautifully finished material, soft and smooth, with a glossy finish on one side. It is used for suits and dresses. Broadcloth of a good quality is very expensive. *Ladies' cloth* is much like broadcloth, but is not so heavy. It is used for suits and dresses.

Alpaca, mohair and *brilliantine* are three fabrics somewhat alike. They are all very smooth, and are finished with a glossy surface that sheds dust well. Fiber from the llama is used in making alpaca. Mohair and brilliantine are made of fiber from the

Angora goat. All three of these materials are used for dresses and dust coats, and sometimes for men's suits. All three of the materials are mixtures of cotton and wool.

Albatross, cashmere, challie and *Henrietta* are light-weight materials used for dresses, wrappers and babies' clothes. Challie is often used for girls' dresses. It is made in flowered or figured design, the design being printed or woven into the cloth. Henrietta and cashmere are made in twilled weave and are much alike.

Flannel is a soft, napped material used for babies' clothes, petticoats, dressing-jackets, shirts, and for many other purposes. It is a material every girl should be able to distinguish.

Melton and *covert cloth* are used in making overcoats. They are heavy, firmly woven materials.

HOME PROBLEMS AND QUESTIONS

Find the price by the yard of the following: serge, broadcloth, cheviot, flannel, and of any of the other materials mentioned in the lesson.

How are blankets purchased? What do they cost?

Examine the rugs at home to see whether the face of the carpet is like the back in any of them. Can you find out the names of some carpets used at home? How is rag carpet made?

LABORATORY EXERCISES

MAKING THE UNDERSLIP (*Continued*)

Textile study: Examine samples of materials studied in lesson. Mount samples in Textile Book. Make one inch of twill weaving on your textile weaving-card. This is done in the following way. First row, under three threads and over three threads, under three and over three, across the row. The second row is begun by bringing up the needle one thread farther to the right than in the group over which the needle passed in the first row; then continue over three and under three, etc. Third row: the needle should be brought up one thread farther to the right than in the group over which the needle passed in the second row, then continue over three and under three, etc. This weaving forms a diagonal line of stitches that go over the warp threads. Can you find the diagonal in cheviot or serge?

Continue work on the slip.

REVIEW QUESTIONS

1. Name three materials for men's suits.
2. Name four light-weight materials used for dresses.
3. Name two materials suitable for dust coats.
4. Name two materials used for men's overcoats.
5. What is the difference between cheviot and serge? between broadcloth and ladies' cloth?
6. How is flannel used?
7. What is a standard material? a novelty material?
8. Is it wise to buy novelty materials? Why?

EMBROIDERY TO USE ON UNDERWEAR

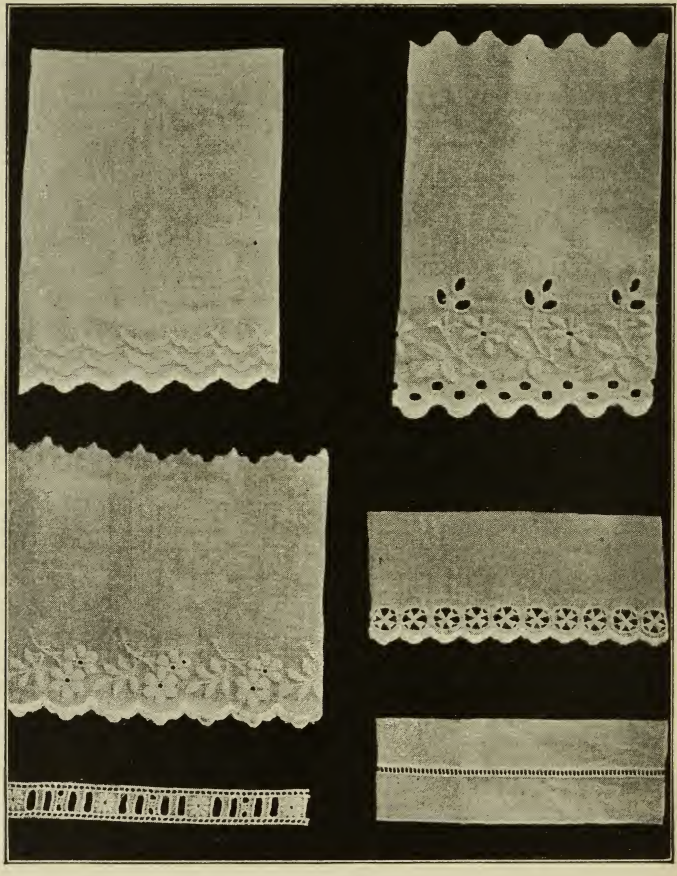
All embroidery on cloth was originally done by hand. Now only a small part of the embroidery used is hand-made, as we have machines that can imitate hand embroidery on cloth. Perhaps you know some one who has a piece of old hand-made embroidery that you can examine. The stitches are beautifully made, and some of them are very tiny. This kind of sewing was very slow work, and if all the embroidery were done by hand to-day we could not use it as freely as we do on underwear, dresses and waists. When we have time, beautiful garments can be made by decorating them with hand embroidery, provided the design is well selected and the work neatly and evenly done.

Machine-made cotton embroideries are made on cambric, batiste, nainsook and Swiss. Cambric and nainsook embroideries are generally used for underwear, because the material on which the embroidery is made is the same in weight as the cloth from which the garment is made. Swiss and batiste embroideries are used in trimming dresses and waists that are made of such materials as organdie, Swiss, batiste, lawn, or dimity.

The term embroidery includes embroidery edging, insertion and beading. *Entre deux* is a very narrow insertion called "seam beading" because it is used between the two edges of cloth that are to form the seam. This is made in the same materials as embroidery edging, and also in voile.

Embroidery edging is usually finished with one edge in embroidered scallops, and the other a raw edge. Sometimes the finished edge is made with a machine-hemstitched hem instead of the scallops.

In selecting an embroidery edging, one should look at the edge of the scallops to see whether they are well finished. Several strips of embroidery edging are woven on one piece of cloth, and when finished the strips are cut apart and are also cut along the edge of the scallops. Sometimes the thread that finishes the edge of the scallops is broken or cut; in this case the edge will be apt to fray out after the embroidery is laundered. Always select an edging with a firm uncut scallop.



Good Types of Embroideries

Either insertions or edgings that are made with openwork designs in which heavy parts of the pattern are held together with fine thread are not best to select when one wishes the embroidery to wear well. Embroidery made in simple designs, instead of very elaborate or poorly constructed designs is always the better selection. Cheap embroidery spoils the appearance of a garment and lessens its value because it will very soon become shabby in appearance. If one cannot afford to buy good embroidery, it is better to use none at all, and to finish the garment in some other way.

Insertion is usually sold with a strip of the cloth left on each side of the insertion. Sometimes the edges are both finished with a scallop such as is used on the edging.

Beadings are sold with a strip of the cloth down each side of the beading. They come in various widths.

Embroidered material used in making waists and yokes comes in widths like cloth, and is called *all-over*. Embroidery flouncings are wide embroidery edgings, often wide enough to make the length of a petticoat or dress skirt.

HOME PROBLEMS AND QUESTIONS

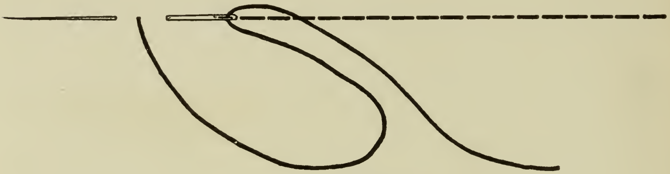
Find any samples of embroidery that you can to bring to school. Get prices of as many as possible.

LABORATORY EXERCISES

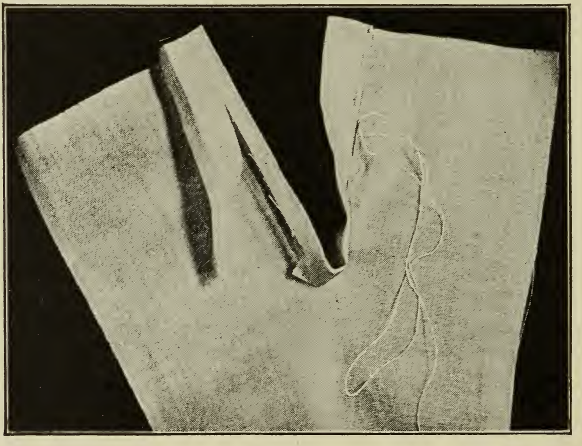
MAKING THE UNDERSLIP (*Continued*)

Textile study: Examine samples of embroidery. Which kinds are good to use with long cloth? Which are of the best design? Why? Examine the scalloped edge. Mount samples in Textile Book. Look in the encyclopedia and see what you can find about hand-made embroidery. Write a story on this subject to read at school.

To make the placket in the underslip: There are several kinds of plackets that may be used for the slip and on petticoats. One of them is the *hemmed placket*. Down one side of the placket make a one fourth inch hem, running the hem to a point at the bottom of the placket. Down the other side make a hem three fourths inch wide, running it down straight. Lap the wide hem over the narrow hem and make two rows of back-stitching across the bottom on the right side and through



BACK-STITCHING



PLACKET

Method of making the continuous placket — bound and faced.

both hems. A hemmed placket cannot be used if the slip is exactly the right width across the back. Why not?

Back-stitching is made by taking one running-stitch over and one under the cloth; then bring the needle back and put it in the hole made by the end of the first stitch, and bring it out the distance of one stitch beyond the end of the second stitch. Pull the thread through. Bring the needle back and put it in the hole made by the end of the second stitch; then bring it out the distance of one stitch beyond the end of the third stitch and pull the thread through. Repeat until the work is completed. Always work on the right side of the material. Why? Back-stitching on the right side looks like machine-stitching.

The Finished Placket

Another placket which may be used is the *continuous placket,* bound and faced. Cut a lengthwise strip of material twice the length of the placket and twice the desired width, allowing for seams. Place right side of facing to right side of garment. Baste in a very narrow seam, about one fourth inch down and up the sides of the placket. At the bottom of the placket run the seam to a point, making it as narrow as it will hold. Stitch seam, remove bastings. Turn under the other edge of facing one fourth inch. On the side of the placket to be used for the buttons baste this folded edge along the line of stitching, so that the raw edge of the seam is inside. The part of the facing that is to be used for the buttonholes should have the under part cut out, as in the picture. Then baste this side of the facing flat to the garment. Hem the entire length of the placket by hand. Lap the top of the placket over the bottom; baste across the lower end of placket, and stitch across the end as shown in the picture.

Practice making the plackets. Make one of the plackets on the slip, making the placket-opening of the length indicated by the pattern.

Estimate the amount of embroidery edging needed for the bottom of the slip. Buy edging, four inches, or not more than six inches wide.

REVIEW QUESTIONS

1. How is embroidery made?
2. What kinds of embroidery are suitable for underwear? for thin dresses and waists?
3. What points should be noticed in buying embroidery edging?
4. What is *entre deux?*
5. How is insertion used on a garment?
6. What is embroidery flouncing?
7. If embroidery edging were not used, how could the slip be finished around the bottom?

KNITTED UNDERWEAR AND STOCKINGS

Knitted underwear and stockings are made on special machines which loop the threads together instead of weaving them. The knitting may be *plain* or *ribbed*, or both kinds may be used in one garment. In using both kinds, one must take the garment from one machine, in which plain knitting is done, and put it into another to do the ribbing.

The ends of sleeves and the legs of drawers in underwear are often finished in this way.

Knitted goods *ravel out* badly when a stitch in the garment is broken, and for this reason stockings and underwear should be mended as soon as the break appears and before it has raveled and become a large hole.

Stockings are made in different ways. The *cheapest stockings* are made by knitting one long tube and cutting it into desired lengths, after which the heel and toe are sewed and the stocking is shrunk into shape. The *best stockings* are knitted in a flat piece, shaped exactly as desired for the stocking, and the shaped piece is sewed together on sewing-machines made for the purpose. This seam runs down the leg of the stocking and along the bottom of the foot to the toe. This stocking is called "*full-fashioned.*" Stockings are made of cotton, wool, silk, or lisle, which is an especially prepared cotton thread. Cotton and lisle stockings are most commonly worn; silk are the most expensive and not suitable for hard usage. Wool stockings are sometimes worn in winter.

Some stockings are made from artificial silk which is a manufactured product made in several ways and is used to imitate true silk. The best grades of artificial silk stockings wear better than the poor or medium grades made of true silk, and cost much less. Artificial silk is also used in making dress materials, sweaters, neckties, ribbons and dress trimmings. It can usually be distinguished by its high luster.

The usual kinds of *underwear* are made of cotton, wool and silk, or of combinations of cotton and wool, or of silk and wool. Knitted underwear, to be warm, must be loosely woven. The open mesh of the weave holds air in the material and makes the garment a warmer one because the heat from the body does not pass so easily through this still air. The loosely woven material also permits plenty of air to remain next the skin. Two loosely woven garments, one over the other, keep the body warmer than one very heavy, tightly woven garment, because of the air space between them.

Knitted underwear absorbs the moisture given off by the body and must be made of material that will take up and give off the moisture quickly. Wool takes up the moisture quickly. Cotton knitted underwear is often loosely woven and so treated that it absorbs readily.

Any garment worn next to the skin must be laundered often to remove the secretions and dirt given off from the body. A dirty garment loses its power to absorb, and when moisture is left next the skin it makes the skin feel cold and uncomfortable.

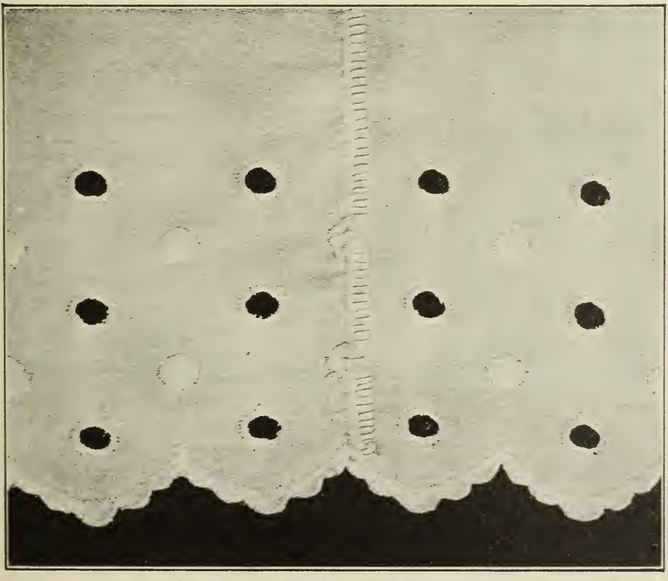
Wool is warm, but many people find it irritating to the skin. Wool is hard to launder because it is apt to shrink and become harsh when the washing is carelessly done. A wool and silk combination is excellent for winter underwear, but it is very expensive. Cotton is often used for knitted underwear, and while it is not so warm as wool it is much liked by many people, and is much easier than wool to launder.

The kind of underwear worn depends on the climate, health, occupation and age. In houses kept at summer temperature in winter, it is unwise to wear underwear that is too warm. It is better to wear warmer wraps when going out of doors than to keep the body too warm while in the house. The *union suit* is a garment that covers the body evenly all over, which is perhaps better for many people than to wear the drawers and shirt which make a double thickness over the abdomen.

At night always hang up the underwear so that it can air thoroughly. Never sleep in underwear worn during the day.

HOME PROBLEMS AND QUESTIONS

Can you find out the price of the stockings you are wearing? Of what are they made? Are they ribbed or plain? Find a full-fashioned stocking and bring it to school. What does a winter union



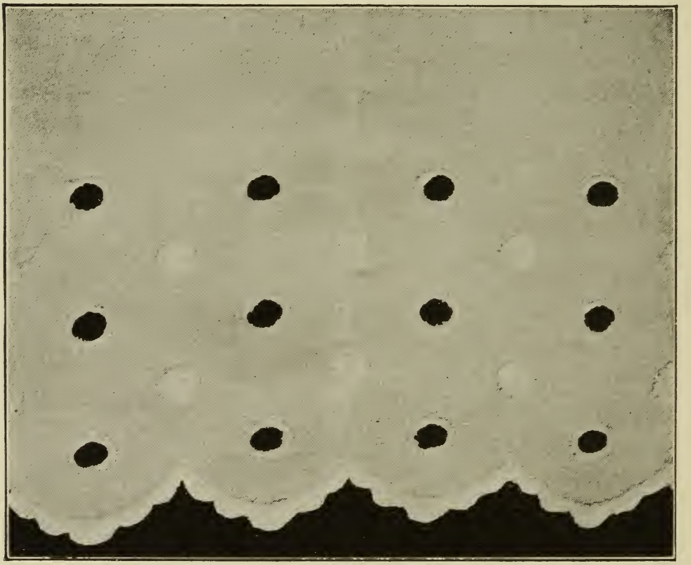
Method of Joining Embroidery

suit cost? Of what is it made? What is the price of cotton stockings? of silk stockings?

LABORATORY EXERCISES

MAKING THE UNDERSLIP (*Continued*)

To join embroidery: Match the pattern in the ends of the embroidery, either between the scallops or through the middle of a scallop. Sew in a plain seam. Buttonhole along the raw edges instead of overcasting. Find the middle of the length of the ruffle, measuring from the seams, and mark with a pin. Begin at the seam and gather to the pin. Gather the other half on another thread. Follow the directions for gathering which were given for the apron.



The Right Side of the "Join"

REVIEW QUESTIONS

1. How is knitted underwear made?
2. How are cheap stockings made?
3. How are full-fashioned stockings made?
4. Of what materials is knitted underwear made?
5. How should we decide upon the kind of underwear to use?
6. Why must underwear be changed often?
7. How should underwear be cared for at night?
8. Can you name any other knitted articles made by machine?

THE COST OF CLOTHING

Have you ever thought about the cost of the clothing you wear, and also about how much money is required each year to buy it? Perhaps you have gone shopping with your mother and have learned the price of some garments. Every family has to spend money every year for clothing, but the amount spent varies with the size of the family, the needs of the family, the amount of the income, and the judgment of the person spending the money. Every one must have a place to live, food to eat and clothing to wear. In addition, there must be money to spend for schoolbooks, music lessons, carfare, coal and many other necessities. Besides this, some money should be saved every year.

The wise home-maker, therefore, makes a plan for spending the money available each year, or the *income*, as it is called. This plan will show how much is to be spent for food, for clothing, for shelter, for running or operating expenses, and for entertainment, education, church, charity and savings. When such a plan is made, it is called a *budget.*

In order to know just how much money is actually spent each month, and during the entire year, a record of expenditures is kept, and this record is called a *household account.* At the end of the year, by checking up this household account, one can find whether more or less money has been spent for each division than the amount planned in the budget.

Many persons spend *more money for clothing than is necessary* because they do not buy wisely; they select materials and garments that do not wear well, that fade, that are not suitable for the purpose, or that do not launder well. Persons who are careless about the care of their clothing spend more money than those who keep their clothing repaired, pressed and clean. Every girl should remember that her clothing is expensive, and should consider it her duty to take as good care of it as possible.

In order to realize the *cost of clothing*, it would be well for each girl to keep an account of the money spent for her clothing each year, even though she does not buy it herself. Such an account will be begun in the "Clothing Book." Perhaps each member of the class will continue keeping it, so that when she begins buying her own clothing she will know the usual price of each article.

The *buying of "fads"*, exaggerated styles, or novelty materials is not wise when clothing must be worn for very long periods. Fads in clothing go out of fashion quickly and must be discarded. The better plan is to select standard materials of good quality and then have the garments made in such a way that they may be worn two or even three years without being out of fashion.

Ready-made garments often cost more and wear a shorter period than do garments made at home. Sometimes, however, it is a wise plan to buy ready-made clothing, especially when one is busy and when energy and strength must be saved for the daily work.

HOME PROBLEMS AND QUESTIONS

Make a list of all the articles of clothing you have. Ask your mother to tell you the price paid for each article, if possible. Which garments, if any, are to be worn more than one year? What is the total amount spent for your clothing?

LABORATORY EXERCISES

MAKING THE UNDERSLIP (*Continued*)

Textile study: Make a booklet consisting of several sheets of plain white paper with a cover of brown or other colored paper. Decorate this cover in any way you wish, making the title " The Clothing Book." When you have completed your list of clothing with the costs, put the items in the book in this manner:

Shoes	
1 pr. high shoes for school	$ 5.00
1 pr. best shoes	5.00
1 pr. pumps	4.00
1 pr. rubbers	1.00
Hats	
1 school hat	3.50
1 best winter hat	5.00
1 best summer hat	5.00
1 sun hat	1.00

Dresses

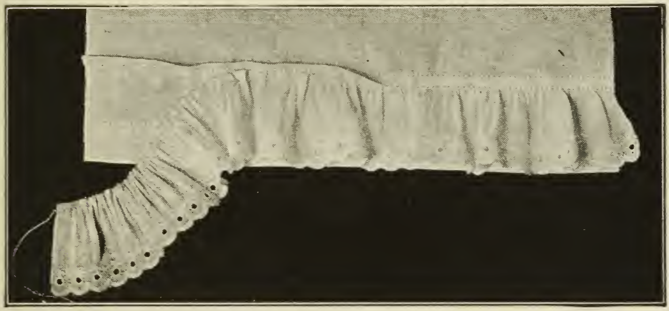
1 gingham dress (made at home) . . .	$ 3.00
1 percale dress (made at home) . . .	2.00
1 serge dress (ready-made)	12.00

Continue until the list is complete.

To finish the bottom of the slip: Try on the slip and straighten the lower edge by marking an even distance from the floor around the bottom of the slip, using a yardstick to measure up from the floor. After taking off the slip, trim off around the bottom by following the marks. Make a hem two inches wide. In basting down the hem on the curve, it may be necessary to lay some tiny pleats; do this by straightening out the folded edge, making the pleat, and then folding down the edge across this pleat. Stitch the hem by machine, thus finishing the bottom of the slip.

Straightening the Bottom of the Underslip

To put on the ruffle: The ruffle is to be put on with a tuck. Measure up from the bottom of the hem on the slip the width of the ruffle; mark with a pin; three eighths inch above this pin make a second marking. Measure from this second mark to the bottom of the hem; what is the length of this measurement? Measure up this distance from the bottom of the hem on the slip; mark with a pin; measure up from the bottom of the hem every four or five inches, so that you have a row of pins around the slip. Make a fold along these pins, folding so that the crease is on the right side of the slip; baste; three eighths inch from the fold just made, stitch on the machine around the slip so that a tuck will be formed when the work is finished. Use the gauge on the machine when making this tuck. Remove bastings.



METHOD OF PUTTING RUFFLE ON WITH A TUCK

Place the seam in the ruffle at the middle of the back of the slip so that the bottom of the ruffle is even with the bottom of the slip, with the raw edge at the top under the tuck; pin; the point where the two gathering threads meet in the ruffle should be pinned to the middle of the front of the slip and under the tuck. Pull the gathering into place and fasten. How will you do this? Pin the ruffle to the slip at several places around the slip, being sure to divide the gathers evenly. Baste with one-fourth-inch stitches along the gathers, keeping the line of stitching straight.

Bring the tuck down over the raw edge of the ruffle so that the fold of the tuck just covers the gathers;

baste with one-fourth-inch stitches just a little above the fold of the tuck and through the tuck, ruffle and slip. Stitch by machine along the fold of the tuck.

REVIEW QUESTIONS

1. What is a budget? a household account?
2. Why are both useful to the home-maker?
3. Why should girls keep an account of the cost of their clothing?
4. Why do persons often spend more for clothing than they should?
5. What is a "fad"? Should most people buy fads? Why?
6. How may clothing be made to wear a long time?
7. When may ready-made garments be wisely bought?

THE CARE OF CLOTHING

The length of time a garment may be worn can be very much increased by proper care. *Good care* of clothing *requires* that some thought and energy shall be used every day, but since a well-cared-for garment wears longer and always looks better, the effort is worth while.

When garments are taken off they should be *well aired* before they are put away. Hang waists over chair-backs, and petticoats, underwear and stockings over chairs at night, so that they are well aired by morning. Never throw down in a heap clothing that is to be worn again, because crumpled clothing does not look well.

When garments are to be put away they should be so arranged that they will be *wrinkled as little as possible.* Coats and dresses should be kept on hangers. Skirts may be kept on hangers, or may be hung up by two loops of tape, one on each side of the skirt at the band. The loops should be hung over hooks arranged at such a distance apart that the band hangs straight. Waists should be folded straight and laid in drawers or boxes. Do not pack too many waists in one drawer, as this is apt to crush and wrinkle them. *Cover-bags* may be used over dresses or coats that are not often worn. These bags will protect the garments from dust and dirt of various kinds. A cover-bag is described in the section on Christmas Gifts.

Wool clothing should be brushed often, and *spots* should be removed as soon as possible after they are discovered.

Cotton and linen clothing must be washed carefully. The *color* should be "set" in a material before it is laundered the first time. Salt, vinegar and sugar of lead are materials used for setting colors. Perhaps you can find the method of doing this in some of the bulletins or books in the library. Colored materials should not be hung in the sun to dry.

Wool skirts, coats and suits should be *pressed* often enough to keep them fresh in appearance. A wrinkled skirt, with the pleats out of shape, can never look well, and the person wearing such a garment is not well dressed. In pressing wool, if the material is pressed on the right side, a cloth is always used between the material and the iron. The cloth is usually dampened and placed over the material, and the cloth is pressed until it is dry. The pressing may be continued on the wrong side. Much practice is necessary before pressing can be done well. Garments may be sent to pressing and cleansing establishments to be pressed, but this is expensive, and many garments can be pressed at home and look well if the work is carefully done.

Hooks and eyes, *snap fasteners* and *buttons* should always be sewed on as soon as they come off the garment. A skirt or waist that is pinned together looks very untidy, and an untidy person is never a well dressed person.

Stockings should be mended neatly and never worn with holes in them. Garments that need *patching* should be mended carefully, and before they are laundered, if possible.

Hats should be brushed with a soft brush to remove the dust, and when worn only occasionally should be kept in a box or drawer away from dust.

Shoes that are kept clean and polished wear longer and look neater. When *heels* become worn and uneven the shoes should be taken to the repair shop to have the heels straightened, for "run-down" heels look very untidy. *Shoe laces* should not be used after they are broken. Knots in the laces spoil the appearance of the shoes. *Shoe buttons* should always be replaced as soon as they come off. *Rubbers* that are muddy should be washed before being worn again.

Every girl wishes to look well dressed, and to effect this every garment must be neat as well as becoming. No garment looks neat unless it is well cared for. Every girl should form the habit of keeping her clothes in good condition, and should learn to do the work herself.

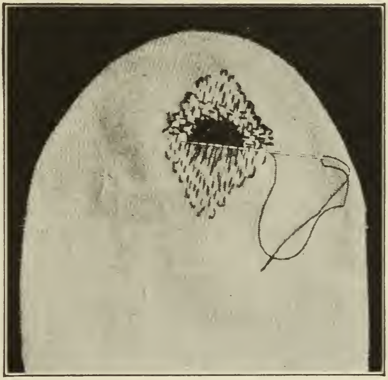
HOME PROBLEMS AND QUESTIONS

Ask some one to show you how to press your wool skirt or dress. Perhaps you can do this at school, with the help of the teacher. Remember to use a piece of cloth between the wool and the iron. Wear the skirt or dress to school for inspection.

Bring to school a stocking that needs darning.

LABORATORY EXERCISES

MAKING THE UNDERSLIP (*Continued*)



METHOD OF MAKING A STOCKING DARN

Darning a stocking: Lay aside the slip and practice darning the stocking you have brought from home. Trim around the edge of the hole so that there are no ravelings and the edge is even. Use four-strand darning-cotton and a darning-needle. For heavy stockings two strands of darning-cotton should be used, but for fine stockings use a single strand. Do the darning on the right side. Begin far enough from the hole so that the worn places around the hole, if any, are covered with the first rows of running-stitches. Begin about one fourth inch from the hole, or farther away if the stocking is worn.

Make running-stitches back and forth in rows close to each other; make the rows of different lengths. Leave a loop of thread at the end of each row; this allows for the shrinkage of the thread and prevents the darn from drawing up after it is laundered. When the hole is reached, make a few running-stitches up to the hole, then extend the thread across the hole and continue with running-stitches; turn and repeat, keeping the rows close together, with the edge of the hole *under* the threads that run across the hole. Continue the rows of running-stitches beyond the hole in the same way as in beginning.

Turn the darn so that other rows of running-stitches are made across the first rows, and weave the thread under and over the threads covering the hole, as in plain weaving, finishing each row with running-stitches. Repeat until the hole is filled, keeping the threads close together. A darn should be smooth, so that it will not hurt the foot, and when made with one or two strands of darning-cotton it will not be uncomfortable to wear.

Darn one pair of stockings a week at home until the end of school. Bring them to school for inspection and comparison with the darning done by others in the class.

Continue work on the underslip.

REVIEW QUESTIONS

1. Why should clothing be carefully looked after and repaired?
2. How should garments worn during the day be cared for at night?
3. What is the best method to use in hanging clothing away?
4. How should wool clothing be cared for?
5. How should colored materials be treated before laundering?
6. How should shoes be cared for?
7. How much of the work of caring for your underclothing do you do yourself?

REMOVING STAINS

Stains not only make a garment look badly, but often make it practically useless. With care many stains can be removed without injury to the cloth.

Stains are more easily taken out of wash materials before they are laundered. If one knows what has caused the stain it is always easier to remove it, because different stains are removed in different ways.

To remove stains successfully it is necessary to use the right kind of equipment. This should consist of granite or earthenware bowls, probably one large and two small ones will be enough; some medicine-droppers which may be bought at the drug-store; and bottles in which to keep the various stain-removers. Stains are very difficult to remove from *colored materials* because in many cases the color is injured in doing the work. In removing many stains from white linen or cotton materials, a *bleaching agent* will have to be used. Javelle water is one of the best bleaching agents, but it must be used carefully to prevent injury to the cloth. Javelle water is made as follows —

1 lb. sal soda
½ lb. chloride of lime
1 qt. hot water
2 qts. cold water

Dissolve the sal soda in the quart of boiling water, Put the chloride of lime in the cold water, allow the mixture to settle, then pour the clear liquid into the sal-soda solution. Put in a tightly corked bottle and keep in a dark place, for light and air cause it to lose its strength. When using, add an equal amount of clear water to the portion of Javelle water.

Another bleaching agent is oxalic acid. This is made by dissolving one ounce of oxalic acid crystals in three fourths cup of hot water. The crystals are purchased at the drug-store.

Some stains can be removed by using something that will absorb them and which is called an *absorbent.* Absorbents are used principally for removing grease stains. Those commonly used are blotting-paper, talcum powder, starch, French chalk and fuller's earth.

Some stains can be removed by using a material that will dissolve them. These materials are called *solvents.* The most common solvent is water. Other solvents often used are gasoline, ether and chloroform. Gasoline, ether and chloroform should be used out-of-doors, or by an open window, and always where there is no fire.

The following methods may be used in removing some of the common stains:

Fruit stains in white wash material. Pour boiling water through them; use a bleaching agent when necessary.

Coffee and tea stains on white wash material. When cream has been used in the tea or coffee, rinse with cold water; then pour boiling water through the stain; bleach if necessary. Stains made by clear coffee or tea should have boiling water poured through them without rinsing in the cold water; bleach if necessary.

Grass stains on white or colored material. Use cold water; if the stain is fresh, use soap and cold water. When on white wash materials, a bleaching agent may be used.

Ink stains. On white wash material use a bleaching agent.

Grease and oil stains. Use an absorbent; or warm water and soap; or a solvent.

Paint stains. Use chloroform or turpentine. An *old paint stain* on white material may be removed with a bleaching agent.

When removing a stain from colored materials, always test a sample of the cloth before using the stain-remover on the cloth. Sometimes the stain will show less than the spot that is left after removing the stain.

Wool materials, when stained very badly, should be sent to the "dry-cleaners." Grease spots can usually be removed successfully at home.

LABORATORY EXERCISES

MAKING THE UNDERSLIP (*Continued*)

Textile study: Remove an ink stain from a white cotton fabric. Stretch the material across the top of a small bowl, with the stain over the middle of the bowl; dampen the stain with water, using a medicine-dropper; apply the bleaching agent with the medicine-dropper; use a second dropper and apply clean warm water to the stain; use the bleaching agent again; rinse; repeat until the stain is removed; rinse with a little ammonia in the water; rinse very thoroughly with clear water. Dry before pressing.

Remove a grease spot from a wool material. Place a layer of clean, white blotting-paper underneath the spot and one on top of the spot; press with a hot iron. Perhaps it will be necessary to try warm soap and water. Apply this with a piece of cloth or sponge; rinse with warm water. When using any other solvent than water, place the stain over a piece of blotting-paper on a flat surface and rub with a cloth or sponge dipped in the solvent; rub towards the center of the spot, as this helps to avoid the " ring " often formed around the spot. Sometimes rubbing the surface near the spot with the solvent, spreading it out over the surface, helps to remove the "ring."

Continue work on the underslip.

REVIEW QUESTIONS

1. What three groups of stain-removers are commonly used?
2. Give examples of each group.
3. Should a bleaching agent be used on colored materials? Why?
4. How may grease spots be removed from wool materials?
5. How should the following stains be removed from white wash materials: clear coffee, grass, paint, and ink?

HEALTHFUL CLOTHING

Every girl, at the present time, wishes to be healthy and strong. She wishes to be strong enough to enjoy tramping, playing tennis, riding horseback, sweeping, or hoeing in a garden, without being "worn out." No one can do any of these things easily unless the clothing she wears permits perfect freedom of the body and is comfortable in every way.

A *healthy body* is kept so by frequent bathing, by changing underclothing often and by wearing suitable clothing. It is necessary to bathe the body oftener than once a week. Many people take a bath every day, and when one forms the habit of doing this one feels uncomfortable unless the bath is taken regularly.

Underclothing worn next to the skin should be changed two or three times a week if it is to readily and thoroughly absorb the moisture from the body. Underclothing should fit in such a way that it does not draw or pull at any point. Union suits are very uncomfortable if they are too small and should not then be worn. Wool underwear that is carelessly washed shrinks and becomes harsh because the loose mesh and the fibers are felted together. *Wool underwear should be washed* in warm — never hot — water, with a mild soap, should never be rubbed but always squeezed to remove the dirt, should be rinsed in water the same temperature as that in which it is washed, should be squeezed — not wrung — and should be dried in a warm place, but not over a hot register nor close to a hot radiator or stove.

Stockings should be chosen to suit the temperature in which they are worn. Thin silk or transparent stockings worn in winter with low shoes are not healthful because much body heat and energy is being wasted in keeping the body warm that would better be used for the necessary functions of the body. Then, too, a person never seems well dressed who appears cold and uncomfortable. Stockings should be changed very often, because the moisture from the skin of the foot soon soils the stocking and causes it to lose the power of absorption, thereby making the foot feel cold and damp. Some people change their stockings every day.

Shoes ought to be comfortable, which means that they must fit the shape of the foot, must be wide enough and long enough, and be made with comfortable heels and soles. A shoe should fit the instep and heel snugly, should be straight on the inside line, should have a heel broad enough to balance the body well and a toe wide enough to give the toes plenty of space. A high narrow heel is not suitable when worn all the time, especially if one is to be on her feet a great deal; it causes "broken arches" and may make one nervous and cause pain.

A shoe should have a sole thick enough to keep out dampness and to make walking easy. In stormy weather *rubbers* keep the feet dry and also prevent the rotting of the thread used in making the shoe.

Tight corsets or *waistbands* are not only very uncomfortable but often cause ill health. Corset waists and corsets should fit well and be loose enough to allow perfect freedom of the body. Skirt and waist bands should be tight enough to stay in place, but not tight enough to stop a free circulation of blood through the body. No one looks well in tight clothing. A *fleshy person* who wears tight corsets and bands pushes the body into such a position that the flesh shows more than it would if the waist were left the normal size.

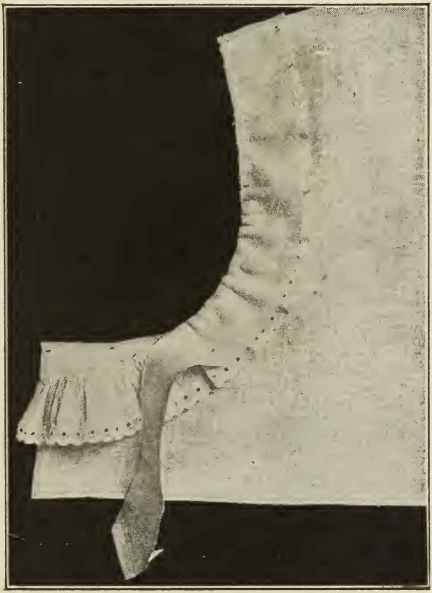
Wearing *too much clothing* is as unhealthful as wearing too little. Select the amount and kind that will suit the climate, the age, the work one is doing and the state of health. Sick people and old people require more clothing than young people who are strong and well. A person working out of doors in winter requires more clothing than a person who works in the house all day. Every one requires less clothing in warm weather than in winter. Remember that clothing has a great deal to do with the state of health, and that it should be selected very carefully if the body is to be kept in a healthy condition.

LABORATORY EXERCISES

MAKING THE UNDERSLIP (*Continued*)

To finish the neck and armholes of the slip: The neck is to be finished with narrow embroidery edging, about one inch in width. Select a pattern that matches or looks well with the pattern in the embroidery used in the ruffle. Enough embroidery edging should be purchased to go one and one third times around the neck and each armhole. How will you measure for this amount? Divide the embroidery into three pieces — one for the neck and one for each armhole. How will you do this?

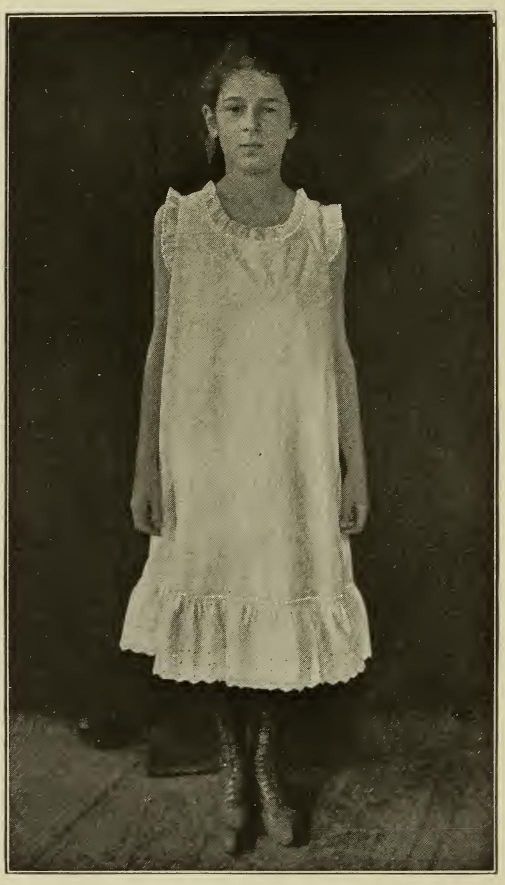
Make a one-eighth-inch hem on each end of the piece for the neck. Gather ruffle one fourth inch from the edge. Join the ends of each piece for the armholes, using the same joining as used in the ruffle. Gather each one fourth inch from the edge.



Method of Basting Bias Strips around Armhole

Trim around the neck and armholes. Find the middle of the length of the embroidery for the neck, and pin this to the neck of the slip at the middle of the front so that the right side of the embroidery is against the right side of the slip, and the raw edges are together. Pin the ends of the strip to the ends of the neck in the same way. Pull the gathers into position; fasten the gathering thread; divide the gathers evenly around the neck, and pin into place at several points. Baste ruffle to slip along line of gathering.

Cut a bias strip of the long cloth one inch wide, as you did for the bias casing. Begin at the back of the neck, place the edge of the bias strip even with the raw



THE FINISHED UNDERSLIP

edge of the seam just made, with the bias strip on top of the embroidery; baste along the line made by the first seam, holding the bias strip slightly fulled instead of stretching it. This will make a seam of three thicknesses of cloth. Stitch the seam by machine. Remove bastings.

Turn in the other edge of the bias strip one fourth inch toward the wrong side. Turn the bias strip down on the wrong side of the slip, drawing it down smoothly from the seam, and baste along seam edge to hold in place. Baste the folded edge of the facing to the slip. Perhaps you will have to stretch the folded edge a little to make it lie smoothly. Turn in the ends of the bias strip and overhand the folded edges to the edges of the placket. The bias strip may be stitched on the machine along the folded edge, or it may be held in place with feather-stitching done on the right side of the underslip along the folded edge of the bias strip.

Finish the armholes in the same way. The seam in the embroidery should be joined to the slip at the under-arm seam. When basting the bias strip in the seam with the embroidery, it may be necessary to hold it a little fuller than you did around the neck, because the armhole is more curved.

To fasten the underslip: Sew on two or three small buttons down the placket, making buttonholes to match.

To shorten the underslip: In order to make the slip the right length, one or two tucks may be made just above the tuck for the flounce. These tucks can be let out when the slip needs lengthening. Use the tucker on the machine for doing this. Follow the directions given for gauging the width of tucks as given in the machine book of directions.

REVIEW QUESTIONS

1. What effect does clothing have on health?
2. What points should be remembered about underwear for the healthy person?

3. How should wool be washed?
4. Discuss stockings in relation to health.
5. What kind of shoe should be selected?
6. Should tight clothing be worn? Why?
7. What things must be considered when selecting clothing that will be best for you to wear?

SELECTING A WASH DRESS

When one selects material for a wash dress there are *several things to be remembered:* (1) Is it a becoming color? (2) Is the design in the cloth right for the figure? (3) Will it launder well? (4) Will the material wear well?

A wash dress has to be laundered often, therefore a material that shrinks badly or that is poorly dyed is not a good selection. Our study of textiles has shown that some cotton cloth is loosely woven, that it is often made of cheap fiber, and that it may have sizing added. When selecting a wash-dress material, the best plan is to test a sample at home before buying the material. *Test* it by washing in warm, soapy water, drying and ironing. If the material shrinks or fades badly it is not a wise selection for a wash dress. It should not *fade in the sun.* Cover one half of the sample with a piece of cardboard on which is placed a book, and leave the other half uncovered; place the sample in the sunlight for several days to see whether it will fade.

Material in which there is a great amount of sizing should never be selected; but remember that many kinds of cloth are starched in the finishing process, so that a starched surface does not necessarily mean that the cloth is poor. A very cheap price usually indicates a very poor material. Often on bargain counters are cheap materials that may offer a temptation to buy, but unless one has had a good deal of experience in selecting materials it is unwise to buy at the bargain counter.

Linen materials are often used for dresses, but linen wrinkles easily and, as it is expensive, is not generally used for the everyday dress. Linen cloth does not soil so quickly as cotton cloth, because the surface is smoother and does not take up the dirt so easily. Colored linen materials usually fade badly. However, we like to have dresses made of linen because of their beauty and "feel."

Besides selecting the colors that launder well, it is necessary, in selecting any dress, to choose the one that is *becoming* in color. There is no complexion that cannot be improved by selecting the color best suited to it. Individuals are divided into two general groups according to their complexion: (1) blondes, and (2) brunettes; but there are many types of blondes and many types of brunettes. It is impossible to give any set rules in regard to the choice of color because of the difference in types and because color affects each individual differently. The color selected for the dress should depend upon the complexion, the color of the hair and eyes, the size of the person, and the occasion when the dress will be worn.

Large people should be careful not to emphasize their size by wearing bright colors, or large or conspicuous designs in materials. *Bright, intense colors* are usually not a wise choice for any dress, not only because they make one conspicuous, but also because they become very tiresome if the garment must be often worn. Bright colors may be used appropriately as touches here and there on a dress. Party dresses are often made of brighter colored materials than should be used for the school or street dress. Dark blues, greens and browns, although good colors to select for wool suits and coats, wool or silk dresses, are not best to select in wash materials, because they are hard to launder. Lighter blues, greens, lavenders, pinks, buffs and tans are colors very much used in wash dresses. Pinks should not be too vivid, as paler shades are more becoming.

To decide on the color for a dress requires thought and study of one's self. Trying on a dress while standing before a mirror may lead one to change one's mind about the color. Observe other people to learn how certain colors affect their appearance. Perhaps you have studied color in connection with your art work. The knowledge so gained can be applied in selecting the color for your clothing. *Color* is the first thing that attracts or repels in a costume, and should be considered first when selecting a dress.

LABORATORY EXERCISES

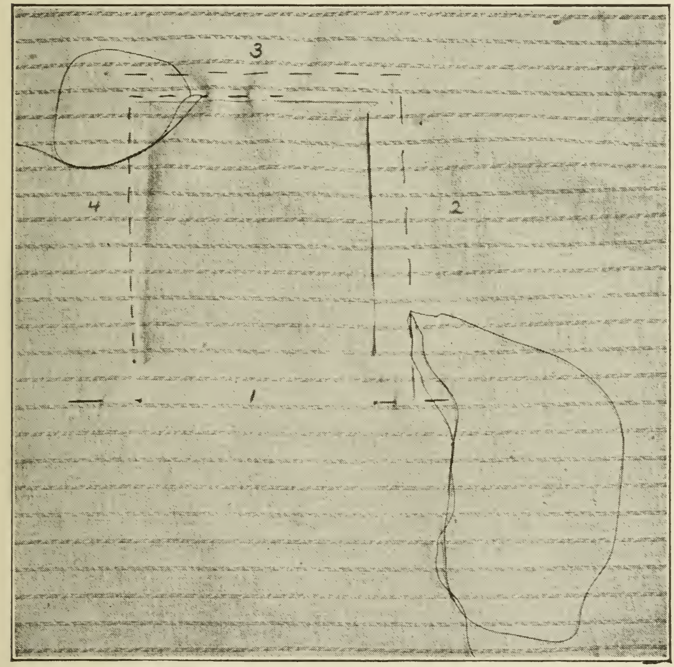
PLANNING THE WASH DRESS

Textile study: Test samples of pink, lavender, light blue and buff chambray to find out how they will launder, and also whether they will fade in the sun.

If possible, test colors on girls of different types before the class. Half-yard lengths of silk, wool, or cotton materials may be used to drape around the shoulders of the girl.

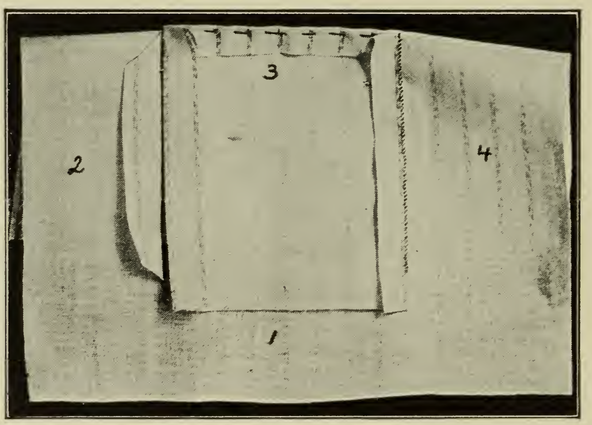
Select colors suitable for wash dresses to wear to school; select colors suitable for a coat; colors suitable for a party dress. Select the most becoming colors for the chambray dresses to be made in class.

Study the pattern book and select a pattern for a one-piece dress of any simple design, which would be suitable to use for a chambray dress. How much chambray will be needed?



Four Steps in Making a Hemmed Patch

To make a hemmed patch: A hemmed patch is used where there will be a good deal of strain on the material and where it is not objectionable to let the stitches show. It would be used when patching such articles as a boy's trousers, or under the arm of a corset-cover or slip. The piece of cloth used for making the patch should be like the garment to be patched. Cut a square or rectangular piece of cloth for the patch, large enough to cover the hole and extend beyond the worn part, allowing one fourth inch extra all around the piece for turning. Turn down on to the wrong side one fourth inch on all four sides of this piece. Find the middle of the patch and place this over the middle of the hole on the wrong side of the garment; pin into place, having the warp threads in the garment and in the patch parallel. If there are stripes, checks, or figures, the patch must be pinned so that they match. Baste along folded edge of patch; hem by hand.



Four Steps in Making an Overhand Patch

Turn garment to right side and cut around the edges of the hole until it is square or rectangular in shape, making the edges of the hole at an equal distance from the folded edge of the patch. At each corner of the hole make a one fourth inch cut on the diagonal of the cloth. Turn the edge of the hole down one fourth inch on to the patch, making the corners square. Baste along fold; hem by hand. Remove all bastings.

To make an overhand patch: This patch is used where there will be little strain on the material, and where it would be objectionable to have the stitches show. A hole in the skirt of a wash dress or in a waist may be mended with this patch. Cut the hole square or rectangular in shape; make a slanting cut at each corner, as you did in the hemmed patch. Turn under this edge all around the hole one fourth inch. Measure the length of the sides of the hole. Cut the patch one half inch longer each way than the size of the hole, making the design in the material match before cutting. Turn the edge of this patch down one fourth inch all around toward the wrong side. Lay the folded edge of one side of the patch to the folded edge of one side of the hole, with the right sides together. Match the design carefully, or in plain material be sure that the warp threads of the patch and garment are parallel. Baste the folded edges together so that they can be overhanded. Overhand along the folded edges. Remove bastings. Repeat the process on each edge of the square. When it is finished, cut off a tiny triangle of cloth at each corner of the piece used for the patch, so that the fullness is removed. Overcast each edge of the patch and each edge of the hole separately. This patch, when well done, scarcely shows on the right side.

REVIEW QUESTIONS

1. What four points should be considered when selecting a wash-dress material?
2. How may wash materials be tested?
3. When is it wise to purchase "bargains"?
4. What are the advantages and disadvantages of linen material for dresses?
5. How should colors for a dress be selected?
6. What colors are good for suits or coats?
7. How should very bright colors be used?
8. Is color in dress important? Why?

THE BECOMING DRESS

Clothing is worn for protection, for modesty and for adornment. Clothing has power to make one look ridiculous, undignified and conspicuous, or it may make one appear dignified, attractive and perhaps beautiful. Clothing also has the power to make one feel comfortable and at ease, or self-conscious and ill at ease.

A really well dressed person never wears conspicuous clothing. When one looks at a well dressed person it is the person herself and not the dress that first attracts attention. The clothing worn should be so selected that it sets off any good points about the face or figure and covers up defects.

Young girls do not need much decoration on their clothing. No one should follow the "latest style" unless it is becoming. In any season there are styles that can be selected which are becoming and are often much more beautiful than the extreme styles. Besides selecting a suitable color for the dress, one must select a becoming color for the hat and wrap, and all three *garments must harmonize* with each other. A coat of pronounced color, such as mustard color, or bright green, is not the best selection if it must be worn with dresses of different colors, because some of the dresses will not harmonize with the color of the coat. A *street coat* of pronounced color is never a good choice when the garment must be worn more than one season, because it is usually very much "out of style" the second season.

Besides selecting the proper color for clothing, it is necessary to select the *right design in the material.*

Very large, brightly colored designs in cloth should not be selected by one who is large in size. Bright plaids are not a wise selection for the stout person; neither are wide stripes a good choice. Narrow stripes may be used, provided there is not too much contrast in the color and width of the stripes. *Plain colors*, when of the right shade, are often the best selection for the stout person; very small, inconspicuous designs in the material may, however, be used. A *glossy surface* on cloth like satin always makes one appear larger if used for an entire garment. *Tall thin people* can often improve their appearance by wearing materials designed in large plaids or, perhaps, in large figures of the right colors.

The *structural lines* of a dress have much to do also with the effect on the figure. *The stout or short person* should emphasize the vertical, or up-and-down line, of the costume. This may be done by having unbroken lines of trimming down the length of the dress; by using narrow belts that are of the same material as the dress; by avoiding the use of wide belts, or of deep yokes on waists or skirt; by never using bands of trimming or tucks running in horizontal lines, and by avoiding ruffles. The dress must not be extremely tight, nor should it hang too loosely, as either arrangement makes one look larger.

The tall thin person needs to emphasize the horizontal line in her costume, being careful not to bring out, with the lines, the objectionable angles.

Never choose the *dress pattern* because it is in style unless the structural lines are adapted to the figure.

Hats and *hair-ribbons* must suit the lines of the face. Hair-ribbons often make a girl look ridiculous because the bow is too large for the size of the head and face.

The only way to learn how to select the well designed costume is to study one's self carefully, remembering that the selection of the right color is very important, and that structural lines may do much to improve one's appearance.

HOME PROBLEMS AND QUESTIONS

Find in the fashion books designs for dresses: (1) emphasizing vertical lines, and (2) emphasizing horizontal lines. Bring the designs to class for discussion. Cut out and mount them in "The Clothing Book"; state under each design what lines are emphasized and how it is done.

LABORATORY EXERCISES

MAKING THE WASH DRESS

Study the pattern to be used for the dress. How should it be laid on the material to be most economical of cloth?

Does the length of the pattern need changing? How will you do this? If tight-fitting sleeves are too long, take a tuck across the pattern two inches above and two inches below the elbow, to make the right length. When the sleeve is too short, cut the pattern across two inches above the elbow and two inches below the elbow, and pin between the pieces of the sleeve strips of paper wide enough to give the needed additional length; shape the edges of the sleeve. Lay the pattern on the material after it is adjusted.

Pin all the pieces of the pattern to the material. Cut out the dress. Follow the directions for making which are given on the pattern. Gingham dresses are usually made with plain seams. All basting and fitting must be done carefully. The dress should be straightened around the bottom before hemming. How did you do this on the underslip?

REVIEW QUESTIONS

1. For what purposes is clothing worn?
2. What effect does clothing have on one's appearance?
3. What kind of clothing does the well dressed person select?
4. What designs in material are suitable for the large person to wear?
5. Do you think the person of average size has much difficulty in selecting becoming clothing?
6. What kind of structural lines should be used in the costume of a stout person? of a tall, thin person?
7. In what ways are these structural lines emphasized?
8. How can one decide about the type of clothing one should wear?

APPROPRIATE CLOTHING

A girl is *well dressed* if she has selected clothing that is appropriate to the occasion when it is to be worn, that is suitable for her circumstances, that is correctly designed, and is made of materials suitable for her age.

Dresses and hats decorated with much trimming are not suitable for a schoolgirl at any time. Velvet and satin are materials which are unsuitable for a young girl to wear. Simple silk dresses may be worn for "dress-up" occasions, provided they are suitable to the community in which the girl lives. A girl never looks appropriately dressed when she wears clothing that may make her companions feel uncomfortable because it is more expensive than that which they are wearing. The girl who selects for her *Commencement dress* one that is much more elaborate than that of any other girl in the class does not look appropriately dressed. Many schools now adopt the plan of having the entire class wear the same type of clothing in order to avoid just such ill feeling as may be caused by the girl who is not kind enough to consider her companions. Girls graduating from the eighth grade should wear for Commencement simply made white wash dresses with black or white low-heeled pumps or shoes; never satin or silk dresses, with French-heeled slippers, gloves and hats!

Simple wash dresses, or simply made wool dresses, are appropriate selections *for school.* The dress worn by the business girl should be plain and designed to give perfect freedom for doing her work. The wash dress is most appropriate *for kitchen wear.* A housekeeper looks very badly dressed when she wears soiled, partly worn, wool or silk dresses in the kitchen, or when she goes about her work with her hair uncombed.

Waists, dresses, or other clothing made from cheap materials or trimmed with coarse, cheap lace and embroidery make one appear *poorly dressed.* No well dressed person selects such clothing. When she cannot afford to buy the elaborate clothing made from good materials, she selects the simpler clothing of good quality and with less trimming.

When a good quality of cloth is selected for a dress, use trimmings that are of as good quality, or else go without trimming. Cheap pearl buttons often spoil an otherwise attractive garment. Frequently, by removing the cheap buttons when they are used as trimming, or by replacing them with good pearl buttons, a garment will be greatly improved in appearance.

No matter how carefully the dress has been chosen and designed, unless the hair is properly arranged, the hair-ribbon of the right color and size, the shoes and stockings of the right style, and the proper amount and kind of jewelry worn, the girl does not look appropriately or well dressed. No young girl needs to curl her hair; she should never use the curling-iron on it, as this breaks and injures the hair. The hair should be arranged in a simple way, and when a ribbon is worn, the color of the ribbon must suit the girl's complexion and must harmonize in color with the rest of her clothing. A girl should *never use powder or paint* if she wishes to look properly dressed. Shoes must be polished and stockings in good order, to look well with any dress. A girl should wear little jewelry. Nothing spoils a girl's appearance more than wearing *cheap jewelry.*

Every girl wishes to be well dressed, and to achieve this the clothing must be neat, made of good materials, of the proper color and design, with the right structural lines, and appropriate to the time, the place and the circumstances. It is every woman's duty, and usually her desire, to look well dressed; therefore it is worth while for the girl in school to begin to study clothing with the thought in mind of selecting that which is appropriate for herself and which will make her unconscious of her appearance.

HOME PROBLEMS AND QUESTIONS

From the fashion book select pictures of garments which you consider proper to wear: 1, two dresses for school; 2, a coat; 3, two wash petticoats; 4, a combination suit or slip; 5, a party dress. Find a picture of the proper kind of shoes to wear to school; of a suitable hat for school; of a suitable hat for "dress-up" occasions. Bring them to school for discussion. Cut out and mount in "The Clothing Book."

LABORATORY EXERCISES

MAKING THE WASH DRESS (*Continued*)

Continue work on the dress.

REVIEW QUESTIONS

1. When is clothing appropriate?
2. Discuss "Commencement" clothing.
3. What kind of dress is appropriate to wear to school?
4. How can a dress be spoiled with trimming?
5. Discuss the selection of hair-ribbons.
6. Under what conditions may a beautiful dress look badly?
7. What points must a well dressed girl consider when selecting her clothing?

SOME POINTS FOR THE CONSUMER

It is estimated that the women of the United States spend a billion of dollars a year for textile materials. Many women know very little about buying textiles, which explains why there are many cheap and adulterated materials put on the market. The cheap and adulterated materials make it difficult for the woman who is a careful buyer to select good materials. We have no Pure Textile law in this country to protect us from adulterated fabrics, as the Pure Food law protects us from adulterated food. In order to buy intelligently and wisely, one must study textiles so that one may learn the quality and price of good materials.

When *buying materials by the yard*, several points should be considered:

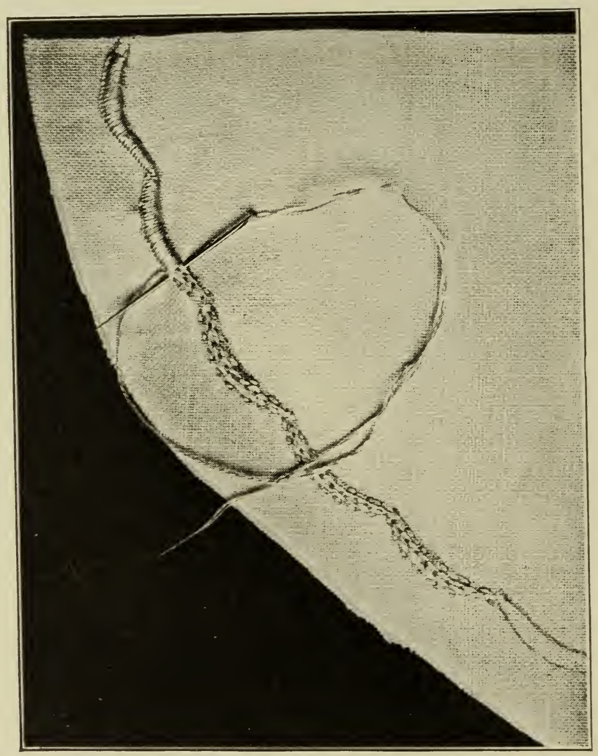
1. Know exactly the amount of material needed.
2. Know the amount of money that can be spent for the material.
3. Know which are the best kinds of materials to select for the purpose and for the price to be paid.
4. Know the points that show good quality in textile materials, so that those selected shall be worth the price paid.
5. Remember always that materials good of their kind should be selected, rather than cheap quality in the more expensive types. For example, it is better to buy a good quality serge which costs less than a good quality broadcloth, than to buy the cheap quality of broadcloth at the same price as the good quality serge.

Firmly woven materials usually wear longer and hold their shape better than loosely woven materials. A garment of all-wool material holds its shape better than one made of part wool and part cotton, and when selecting materials for dresses, coats, or suits, it is wise to buy all-wool if one can afford to do so.

A soft, pliable *silk* is usually less likely to be weighted, and will wear better, than a heavy, stiff silk. A silk material should be firmly woven because when loosely woven it is apt to pull out at the seams. "*Bargains*" in silk are usually not a wise selection, because the silk is apt to be of poor quality or has been injured in some way. Both wool and silk are expensive fibers and no one should expect to buy cheap materials made from them.

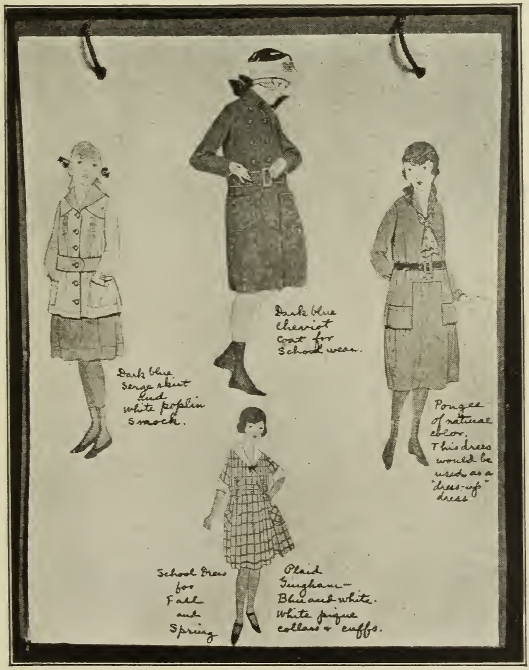
In *buying ready-made garments*, there are many things to be considered:

1. Is the garment made under sanitary conditions? Many undergarments, cheap waists and dresses are made in sweat-shops that are dirty, poorly aired and in every way an unfit place for women and girls to work. Often such garments are made in homes where conditions are not sanitary and



METHOD OF MAKING EMBROIDERED SCALLOPS

where, perhaps, there is sickness. The girls and women in sweat-shops work long hours for low wages. Garments made under these conditions are often cheaper than those made under good conditions, but are not sanitary. The best ready-made


Dark blue
Cheviot
Coat for
School wear.
Dark blue
Serge skirt
and
white poplin
smock.
Pongee
of natural
color.
This dress
would be
used as a
"dress-up"
dress
School Dress
for
Fall
and
Spring
Plaid
Gingham—
Blue and white.
White pique
collars & cuffs.

A Page from the Clothing Book

garments are made in light, well ventilated, clean work rooms, by women and girls who receive good wages for their work. Inexpensive as well as costly garments are often made under these good conditions. Many garments made under good conditions are labeled with the Consumers' League label. This is a printed tag, fastened to the garment, and can be used only by factories where the working conditions meet the standards of the League. Perhaps you have seen garments with this label.

2. Is the material of good quality and suitable for the garment?

3. Is the garment well made, so that the seams will hold and the trimmings not pull apart? Coarse or crooked stitching spoils the appearance of a garment. Ready-made garments, such as dresses, coats, or suits, may often be bought at a lower price when purchased "out of season." Winter garments are sold for less in January and February, and summer clothes in July and August. If one selects a garment of a style that will look well the following season, it is economy to buy "out of season."

When planning the wardrobe for any season, first look over all garments left from the previous year to see which can be mended or made over; then decide what new garments will be needed. It requires careful thought and planning to buy wisely, and whoever wishes to make the best use of her money must know many things about textiles before she can make the best selections.

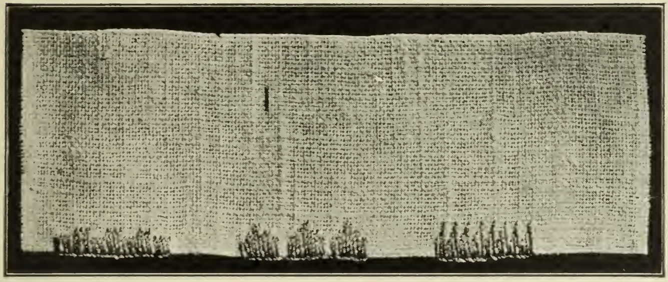
HOME PROBLEMS AND QUESTIONS

Write a composition on "The Selection of Clothing" to read in class. Put this in "The Clothing Book."

LABORATORY EXERCISES

MAKING THE WASH DRESS (*Continued*)

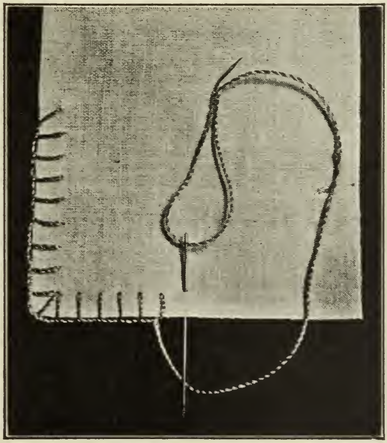
Collars and cuffs of a contrasting material may often be used on the wash dress. White piqué or heavy linen may be used with chambray. Figured materials may be used as trimming on garments made of plain material; if the garment is of figured material use plain material for collars, cuffs, etc. With a figured material, never use braids put on in patterns.



Designs in Blanket-stitch

These may be used on the edges of collars and cuffs.

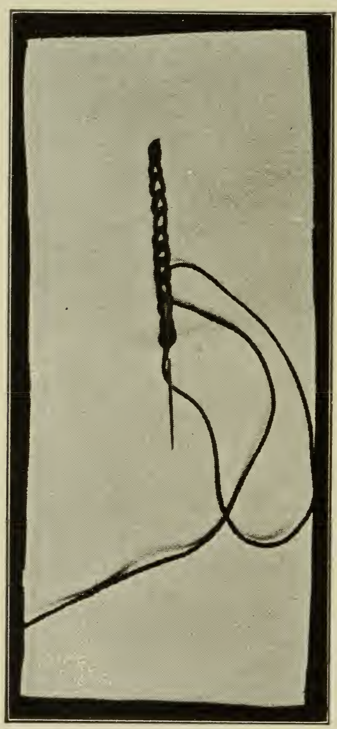
To use the blanket-stitch on a collar: Fold a narrow hem on the edge of the collar; baste. Make the blanket-stitch over this hem, using cotton embroidery floss to match or harmonize



Method of Making Blanket-stitch

with the color of the dress. The stitches may be made of different lengths, so that points are formed in the design.

To use the chain-stitch on a collar: Fold a hem on the edge of the collar; baste. Hold the hem in place with chain-stitching. Chain-stitching is always done on the right side of the material. Begin with a knot. Bring the needle through from the wrong side, hiding the knot under the folded edge of the collar. Put the needle into the hole through which the thread just came, and make a stitch one eighth inch in length, bringing the point of the needle through the loop of thread formed by bringing the thread out and putting the needle back in the same hole. Pull the loop into place, so that it is flat on the cloth but not drawn out of shape. Put the needle into the hole inside the loop through which the thread just came, and make a stitch one eighth inch in length, bringing the point out over the thread; draw the loop into place. Continue in this way. The material should be held so that the needle points towards the worker when each stitch is taken. Making the stitches even makes the work uniform. Chain-stitch should be made with heavy embroidery floss.



Method of Making Chain-stitch

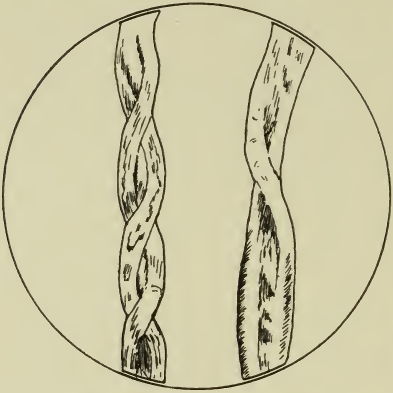
To scallop the edge of the collar: Draw a design for the scallops to be used on the edge of the collar; trace on the cloth, being sure to follow the shape of the collar as given in the pattern. Make a row of running-stitches along the tracing of the scallop on both the outside and inside edge. Chain-stitch through the middle of the scallop; this is to be used as padding in order that the scallop may be rounding on top when finished. Finish the scallop by blanket-stitching. The stitches should be made close together and so that they cover the rows of running-stitches and the chain-stitch. Use embroidery floss that is not too heavy, or the work will look coarse.

REVIEW QUESTIONS

1. How much money do the women of the United States spend for textiles every year?
2. Is it as difficult to choose pure textiles as it is to choose pure food? Why?
3. What points should be remembered when buying textile materials by the yard?
4. What points must be remembered when selecting silk? wool?
5. What is the work of the Consumers' League?
6. What points should be observed when selecting ready-made garments?
7. How may the study of textiles and clothing be a great help to the buyer?

SOME TEXTILE TESTS

Because textile materials are often adulterated, or made of poor material, it is quite necessary to know some simple tests that may be used for detecting inferior fabric. Often, by the use of one of these tests, one may avoid buying a fabric that will not wear well, that is not true to name, that will fade or launder badly, or that will pull and stretch out of shape readily. The following tests will be of help and should be used whenever possible:



Cotton Fibers Magnified

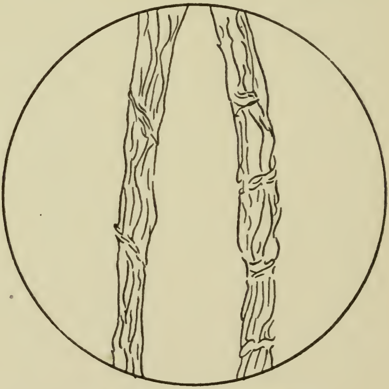
A study of fibers under the microscope. The high-power microscope is very useful in telling the quality of a fabric, because each fiber has a different appearance under the microscope. By pulling apart the threads in a fabric and examining the fibers, one may tell whether the cloth is all-wool, whether it is all-linen or all-silk, and whether poor fibers have been used as substitute material. Under the microscope the fibers look as follows:

Cotton — ribbon-like, tubular fibers which are more or less twisted.

Flax — long, with cross lines at intervals, giving the appearance of joints.

Wool — a serrated surface which is easily detected.

Silk — no markings of any kind, but the fibers appear



Flax Fibers Magnified

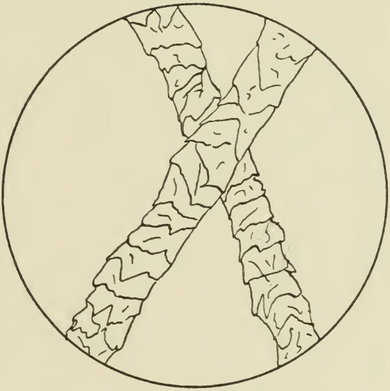
as somewhat flattened and composed of two filaments.

Burning tests. By burning threads pulled from materials one may often judge somewhat of their quality. Light the end of the thread and observe the odor given off and the manner in which it burns.

Cotton and linen threads burn quickly, with a flame, and little odor is apparent.

Silk and wool threads burn slowly, char, and smell like burned feathers.

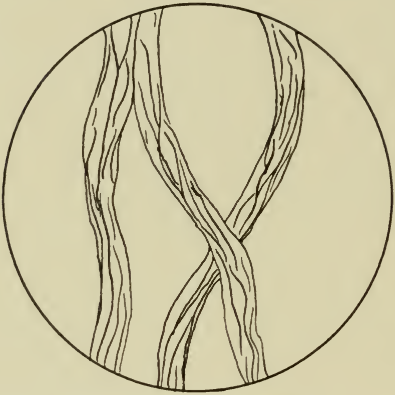
Weighted silk burns very slowly and, if very heavily weighted, the form of the silk remains after burning.



Wool Fibers Magnified

Testing the strength of fabrics. A fabric is not strong and does not wear well when it is made of a poor fiber; of weak threads in the warp and strong threads in the woof, or vice versa; or if woven poorly. Pull apart the material and test both warp and woof threads by pulling. Try tearing materials, such as muslin, long cloth and gingham. If they tear with little effort the cloth is not so good as it should be. By holding a piece of cloth firmly with both hands and pressing down on the surface with both thumbs one may determine whether the material is firmly woven. If the threads push apart easily the material will be apt to pull out at the seams or wherever there is any strain.

Tests for shrinkage. A wash material may be tested for shrinkage by first carefully measuring the length and width of the sample, then washing in warm soapsuds, rinsing, drying and pressing; after this the sample should again be measured and the size compared with its original size.



Silk Fibers Magnified

Weighting in cloth. Cotton and linen materials may be tested for weighting in several ways:

1. Tear the cloth and observe whether a fine powder flies. This powder is weighting.

2. Scratch the surface of the cloth with the finger nail to find whether any of the weighting material can be removed.

3. Rub the cloth between the hands and observe whether the weighting will rub out of the material, leaving it less stiff and not so heavy in appearance.

4. Boil a sample in water until the sizing is removed, after which the true quality of the material may be observed. The time required for doing this will depend upon the amount of sizing present.

5. Study the cloth by holding it up to the light and looking through it. Sometimes the sizing may easily be seen.

Silk materials are weighted by adding chemicals, and the tests above do not apply. A weighted silk may be burned, a square sample being used instead of a thread. If the silk is weighted it retains its shape after burning.

Chemical tests. Chemical tests are the most dependable in determining the quality of cloth, but many of them require a considerable equipment and a knowledge of chemistry; therefore, in testing materials at home, only a few tests can be used. The following are some very simple tests:

To determine the amount of cotton in a wool sample. Place the sample in a porcelain dish, cover with a 5 per cent solution of caustic potash (this can be purchased of the druggist), boil gently for fifteen minutes, remove what remains with a glass rod, rinse in clear water and dry. The part of the sample left is the cotton in the material, as the wool is destroyed by the caustic potash. If nothing is left of the sample after it has been boiled, it is all-wool.

To determine the amount of cotton in a silk material. Follow directions given in the first test. The silk will be destroyed and the cotton will remain.

To determine the amount of cotton in a linen material. Pull out the warp and woof threads on two sides of the sample, so that a deep fringe is formed. Place the fringed sample in a porcelain dish; cover with a 50 per cent solution of caustic potash (obtained from the druggist), and heat for two minutes; remove sample with glass rod, dry between blotting-papers. The linen will be dark yellow or orange in color, and the cotton white or light yellow.

This test is easily used on white flannel.

To determine whether silk is "true" or artificial. Place the sample in nitric acid, remove and observe color; true silk turns yellow, artificial silk is not affected.

LABORATORY EXERCISES

MAKING THE WASH DRESS (*Continued*)

Textile study: Make as many of the tests described above as possible.

Continue work on the dress.

REVIEW QUESTIONS

1. In what ways are fabrics adulterated?
2. Describe the different fibers as they appear under the microscope.
3. Name some types of materials in which weighting is sometimes found.
4. Why do we wish to avoid buying materials that are weighted?
5. What effect does weighting have on silk?
6. In what two ways may a linen cloth be tested to find whether it is all-linen?
7. Name some materials likely to be adulterated with cotton.
8. In what ways should a gingham be tested before it is purchased for a dress?
9. In what ways should long cloth and cambric be tested?
10. How should a silk material be tested before purchasing? a wool material?
11. Does the price of a material fully indicate its value?
12. Why is it worth while, whenever possible, to test materials before purchasing?

CHRISTMAS GIFTS

Gifts that can be used, or that really give pleasure to the person receiving them, are the proper ones to select. Gifts that cannot be used or enjoyed by those receiving them show either bad taste or else a lack of thought on the part of the donor. A beautiful Christmas card may give more pleasure to some persons than any other gift that could be selected. It is not the cost, but its fitness, that makes the worth-while gift.

Hand-made gifts are especially desirable, because they represent time and thought spent for the purpose of giving pleasure to those receiving the gifts. The following are simple gifts that can be made at school or at home by the members of the sewing-class.

Cover-bag: *Materials* — three and one half yards wash material, 27 to 30 inches wide; lawn, dimity, or similar materials are suitable. Thread to suit materials. Cotton embroidery floss.

Straighten the ends of the material. Fold together so that the ends are even and the right side of the material is inside. Make a plain seam one fourth inch wide down each lengthwise edge. Turn the bag with right side out. Across each end make a hem one inch wide, and feather-stitch with the embroidery floss. Find the center point on the fold at the top of the bag. Cut out a round piece of the cloth at this center point, making the hole about the size of a dollar. Make a very narrow bias facing around the hole, following directions given for facing armhole of underslip. Feather-stitch the facing down to the material, using embroidery floss. This hole slips over the hook on the coat-hanger.

Linen money-bag: This is a suitable gift for any one who travels.

Materials — A piece of white linen, 8½ inches long and 4¾ inches wide. Thread to suit material. A piece of chamois five inches long and four inches wide. One yard of narrow linen tape. Two very small pearl buttons.

Make a hemstitched hem one half inch wide across one narrow end, and a plain hem one half inch wide across the other end. Make plain hems one eighth inch wide down each side. Fold up the end finished with the plain hem to make a pocket 2½ inches deep. Overhand the sides together, as in making the apron pocket. The hemstitched end laps over the top of the pocket. The tape should be cut in halves. Sew one piece at each side of the fold of the lap. This is done by making a tiny hem across the end of the tape and then overhanding the fold of the hem to the pocket. Fold the chamois together and overhand at the sides to form a pocket. This slips into the linen pocket, and can be removed when the linen pocket needs washing. To fasten down the lap of the pocket, sew the buttons to the linen pocket; make two loops on the fold of the hemstitched hem that will fit over the buttons. To make a loop of thread, make three long stitches, one over the other, exactly on the fold; blanket-stitch around these threads, making the stitches very close together.

Stove-holders: *Materials* — Muslin strip, twenty-four inches long and six inches wide. Chambray strip 12½ inches long and 6½ inches wide. White thread. A narrow linen tape, four inches in length.

Fold the muslin strip to four thicknesses, so that it makes a six-inch square. Baste so that the edges are kept even. Turn down the edge of the chambray one fourth inch toward the wrong side. Baste down this fold. Cover the muslin square with this strip, placing the wrong side of the chambray next to muslin. Baste together the folded edges of the chambray on the three open sides of the holder, being careful to keep the folded edges even. This makes a holder six inches square. Stitch with machine, close to the folded edge, along all four sides of the holder. Baste together the layers of the holder so that they do not slip; make a straight line of basting diagonally across the holder each way; this is to be a guide in stitching. Stitch with machine along these lines of basting. Place the two ends of the piece of tape together; overhand the tape together along one side for three fourths inch, beginning at the cut ends; open flat. Turn under this cut end one eighth inch. Fasten the tape to the corner of the holder by hemming along the edges and across the end, leaving a one-inch loop beyond the edge of the holder, so that it may be hung up easily.

PART II

FOODS AND COOKERY, AND THE CARE OF THE HOUSE

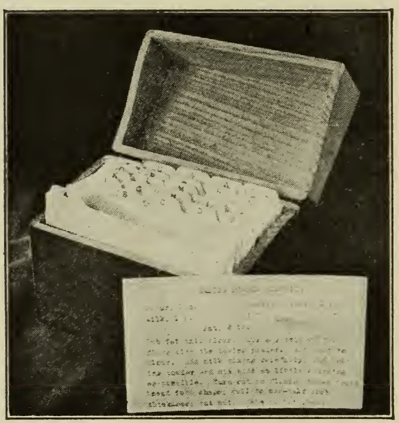
FOODS AND COOKERY, AND THE CARE OF THE HOUSE

PROCESSES USED IN COOKING

Food is cooked: (1) to improve its appearance, (2) to improve its flavor, (3) to make some foodstuffs more digestible, and (4) to kill microorganisms.

A Cooking Laboratory in a Rural School

The *first cooking* that was done by primitive man was the roasting of game by the open fire and the parching of corn on hot stones, both processes requiring no cooking equipment. Before water could be used as a cooking medium, primitive woman had to begin pottery-making and basket-weaving; she had to have utensils which would hold the water. Food was first cooked in water by placing hot stones in the water with the food, not by placing the utensil containing the water over the fire. Some processes used in camp cookery are modified forms of primitive cooking.



Card-file Cook Book

One card is to be used for each recipe. Card may be hung up in a convenient place while in use.

Cooking processes at our command to-day are:

I. Direct application of heat.
   1. Broiling: cooking over a hot fire, exposing the surfaces of food to the direct heat, with short cooking of the interior of the food; example, broiled beefsteak.
   2. Roasting: cooking by an open fire, exposing the surface to the direct heat, but allowing a long period of cooking for the interior of the food; example, a roast cooked under the direct gas flame in an oven.

      Strictly speaking, the popular use of the word "roasting", as applied to meat cooked in an oven, is incorrect. "Roast chicken" and "roast beef" are really baked meats.

II. Application by means of heated air.
  Baking: cooking in a heated oven; example, baked bread.

III. Application by means of heated water.
  1. Boiling: cooking in boiling water; example, boiled potatoes.
  2. Stewing or simmering: cooking in water below the boiling-point; example, beef stew.

IV. Application by means of steam.
  Steaming: (*a*) cooking in a utensil into which steam passes; example, steamed pudding; (*b*) cooking in a closed utensil surrounded by steam; example, milk heated in double-boiler.

V. Application by means of heated fat.
  1. Sautéing: cooking in a small quantity of fat; example, browned potatoes.
  2. Frying: cooking in hot fat deep enough to cover the food; example, croquettes.

VI. Application by means of heated metal.
  1. Pan-broiling: cooking in a frying-pan or on a griddle without the addition of fat; example, broiled bacon.

VII. Combination processes.
  1. Braising: a combination of stewing and baking; example, casserole of beef.
  2. Fricasseeing: a combination of sautéing and stewing; example, fricasseed chicken.

In all cooking great care must be taken to *follow directions* carefully. When tested recipes fail, it is usually the fault of the cook and not the fault of the recipe. Cooking becomes much more interesting when one understands why certain processes are followed, and in the laboratory work in a school course this is one of the important things to learn.

Every girl should learn to work accurately yet quickly, making only what motions are necessary, thereby saving time and energy. Sometimes there is only one "best" way to do a thing; in other cases there may be several equally good, and it is always wise to use methods that are considered the best by experts.

One Type of Cooking-apron — Kimono Style

LABORATORY EXERCISES

DIRECTIONS FOR WORK IN LABORATORY

Personal appearance:

1. A wash dress is always to be preferred in the school laboratory or home kitchen.

2. White aprons should be worn in the cooking laboratory. There are several types that may be used.

3. Holders for lifting hot dishes, and individual hand towels, should always be used by every student.

4. The hair should be brushed back and fastened so that it does not fall in the face. If white caps are worn they should be pulled down to cover the front of the hair.

5. The hands should be thoroughly washed and the nails scrubbed with a brush and cleaned thoroughly before you begin any cooking. When cooking, wash your hands whenever they become sticky or soiled.

6. Do not wear rings, bracelets, or other jewelry in the kitchen.

Directions for work should include:

Assignment to desks.

Checking equipment.

Discussion of rules regarding care of towels, desks, implements, etc.

Explanation of the kind of notebooks, reference books, or textbooks required.

SOME POINTS ABOUT FOOD

When people or animals go without food too long, they lose flesh and become very weak; finally all motion of the body ceases. The eating of proper food is very important if the body is to be kept well and strong.

Food makes muscle, fat, bone, blood, hair and teeth; it produces the energy which is needed for all movements of the body, and it also supplies the warmth required. Only a part of the food is used by the body for the purposes named, and such parts are called *foodstuffs* or the food principles.

There are five main classes of foodstuffs. In some foods only one class of foodstuffs is found, while in other foods several or all of the foodstuffs may be present.

The five groups of *foodstuffs* are:

1. *Protein*, used in the body for body-building, and to produce energy and warmth. It is present in such foods as meat, milk, cheese, cereals and legumes.
2. *Carbohydrates*, used in the body to produce energy and warmth. They are found in such foods as potatoes, rice, fruits, cereals and legumes.
3. *Fat*, used in the body to produce energy and warmth. It is found in large amounts in such foods as butter, cream, olive oil and fat meat.
4. *Minerals*, used in the body for body-building, and found in most foods.
5. *Water*, used in the body to help in digesting the food and in carrying away waste material from the organs of the body, thus keeping the body in a healthy condition. Water is found in practically all foods in either large or small amounts.

Besides these five foodstuffs there is found in some foods a very important class of substances called *vitamines*. Little is known about the vitamines except that there are probably two kinds, and that they are necessary for the *body growth* and also to *keep the body in health*. One kind is found in butter, egg-yolk and such vegetables as lettuce, spinach and dandelions. The other kind is present in vegetables, fruits and whole cereals. Milk contains both kinds.

When the meals for the day are planned, foods must be selected that will furnish some of each of the foodstuffs and vitamines, so that the body shall not lack material for growth, warmth and energy.

LABORATORY EXERCISES

MEASUREMENTS

Careful measuring or weighing of the ingredients used in a recipe is very necessary if the results are to be of the best. The utensils commonly used for measuring foods are: scales, measuring-cup, measuring-spoons, tablespoons and teaspoons. In measuring dry materials, fill the measure and level off the top with a knife. When one half teaspoon is desired, divide the material lengthwise of the spoon and scrape out one half. For one fourth teaspoon divide crosswise the remaining half.

Kitchen Equipment

Double-boiler, vegetable-press, scales, oven and chemical thermometers, measuring-cups, spatula, wooden spoon and bread-rack.

Experiment:

Use water for the following:
1. To find the number of teaspoons in one tablespoon.
2. To find the number of tablespoons in one cup.
3. To find the number of cups in one pint.

Use sugar for the following:
1. To find the number of tablespoons in one cup.
2. To find the number of cups in one pound.

Use flour for the following:

1. Fill the cup by dipping it into the flour; weigh.
2. Fill the cup by using a spoon; weigh.
3. Sift the flour, fill the cup by using a spoon; weigh.

Use salt for the following:

1. Measure one half, one fourth, and one eighth teaspoon.

BAKED STUFFED PEPPERS

Cut a thick slice from the stem-end of each pepper, remove all the seeds, wash thoroughly and let drain. Use enough stale bread crumbs to fill the peppers; add salt to taste, as much butter as desired and enough water to slightly moisten the crumbs. Heat this mixture until the butter is melted. Fill the peppers. Place them in a baking-dish in an upright position, and on top of each place a small square of bacon. Put water in baking-dish one half inch in depth. Bake slowly for forty-five minutes or until tender.

Have you ever seen green peppers used in any other way? Perhaps some one can bring to school a good recipe that may be copied in the class notebook and tried at home by other members of the class.

REVIEW QUESTIONS

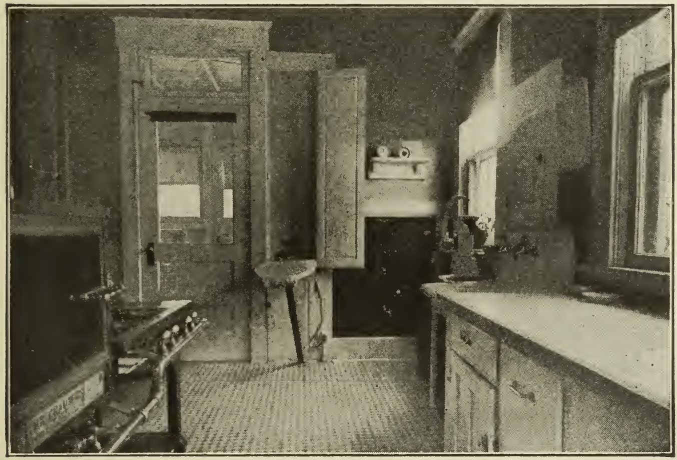
1. For what purpose is food used in the body?
2. Name the five foodstuffs (food principles).
3. Name some foods in which each is found.
4. Do foods ever contain more than one foodstuff?
5. Name one food in which vitamines are found.

THE KITCHEN

The kitchen is *a workshop* where food is cared for, prepared, cooked and served.

The most *convenient kitchen* has windows or doors on two sides of the room, so that when these are open, a cross draft of air clears the room of smoke and odors.

The kitchen should be the *cleanest room* in the house. The most sanitary kitchen has *walls* finished in material that can be washed, such as oil paint or tile. Walls and woodwork should be light in color, because this makes the room seem more cheerful and also makes it easy to "see the dirt", which then may be removed.



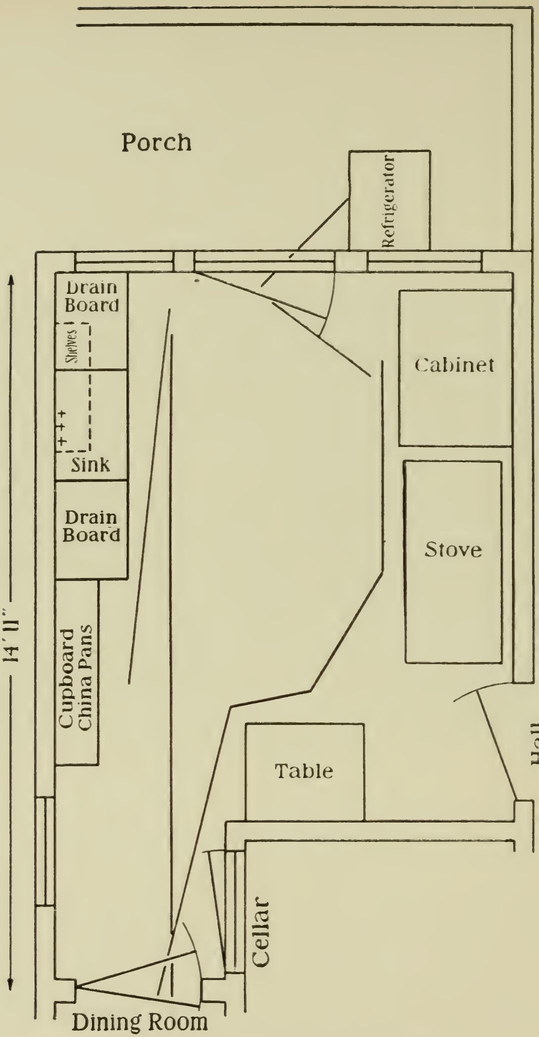
A CONVENIENT KITCHEN

With built-in ironing-board, ice-box and work-table.

Hard-wood floors may be oiled or waxed and used without covering. *Soft-wood floors* may be covered with linoleum or cork carpet, or they may be painted.

The kitchen should have *built-in cupboards* with plenty of space for utensils.

The sink, with a drain board at each end, should be set where there is plenty of light, and it should


Porch
Refrigerator
Drain Board
Shelves
Sink
Drain Board
Cupboard China Pans
14′ 11″
Cabinet
Stove
Table
Hall
Cellar
Dining Room

"ROUTING LINES" IN A KITCHEN

A wheel-tray would be a convenience in removing dishes from the dining room. The refrigerator would be more convenient if built into the wall.

be open underneath to avoid the dampness often found in sink cupboards.

The kitchen may have a *built-in ice-box* arranged to be iced from the outside of the house. Some kitchens have a dumb waiter to the basement.

If an *ironing-board* is used in the kitchen, it may be built into a space in the wall, being let down when needed and folded back when not in use.

Other devices sometimes found in the kitchen are: a closet for cleaning implements, such as broom, bucket and brushes; a cupboard for the leaves of the dining-table, and a built-in kitchen cabinet. There may also be a pantry.

Each housekeeper decides for herself how to make the kitchen a well arranged and equipped workshop. In a well arranged kitchen the equipment is so placed that the housekeeper can use it without losing time or wasting strength in walking.

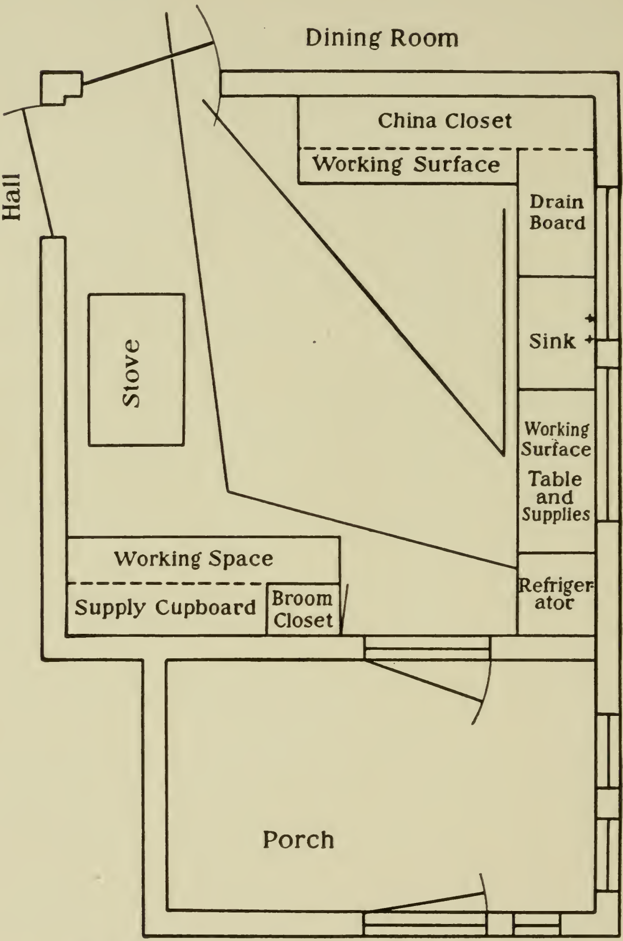
HOME PROBLEMS AND QUESTIONS

Make a drawing of your home kitchen, showing where the sink, the cupboards, the table, the stove and other equipment are placed.

Notice with care the steps taken by a person preparing breakfast, and then make dotted lines on your drawing to show where she has walked. Such a line is called a "routing line."

Do you think any of the equipment could be changed to make the kitchen more convenient?

Bring your drawing to school for discussion.


Dining Room
Hall
China Closet
Working Surface
Drain Board
Sink
Stove
Working Surface
Table and Supplies
Working Space
Supply Cupboard
Broom Closet
Refrigerator
Porch

"Routing Lines" in a Well Arranged Kitchen

If the refrigerator were built into the wall it could be filled from the porch outside.

LABORATORY EXERCISES

STUDY OF STOVES

Experiment:

Examine the stoves to be used in the laboratory.

If a gas range:

1. What kinds of ovens are there?
2. Is there a pilot to use when lighting the ovens?
3. Do the oven doors fasten tightly?
4. Does the top burner have a stationary or movable mixer?
5. If there is a movable mixer, light the gas burner and observe the color of the flame; turn the mixer and observe the flame.
6. What color should the flame be to give the most heat?
7. Place a bright clean kettle, containing a small amount of water, over the yellow flame. What happens to the outside of the kettle?
8. What is the use of the mixer?
9. How is the top burner removed for cleaning?
10. Can other parts be removed for cleaning?

If a coal or wood range:

1. Examine the firebox to see how it is constructed.
2. Where is the ash-pan? How are the ashes removed?
3. Find the dampers on the stove, and determine the use of each.
4. For what is the stovepipe used?
5. How does the heat warm the oven?
6. Lay the fire in the following manner. Clean the firebox and ash-pan, crumple paper and put a generous layer over the bottom of the firebox; place kindling on top of the paper in such a way that the air passes between the pieces; place one large or two small shovelfuls of coal or sticks of stove wood on top of the

kindling. How shall the drafts be arranged before the fire is lighted? Clean the top of the stove before lighting the fire.

ORANGEADE

Juice of one orange
$\frac{1}{2}$ tsp. lemon juice
$1\frac{1}{4}$ tbsp. sugar
$\frac{2}{3}$ c. water

Mix ingredients thoroughly. Perhaps the mixture may need straining. Chill before serving.

Fruitade or lemonade may be made also.

APPARATUS FOR THE KITCHEN

Stoves are of various types and must be selected to suit the kind of fuel to be used and the size of the kitchen in which they are to be placed.

A *fuel* is a substance which when burned produces heat, and it is this heat that cooks food when applied to it.

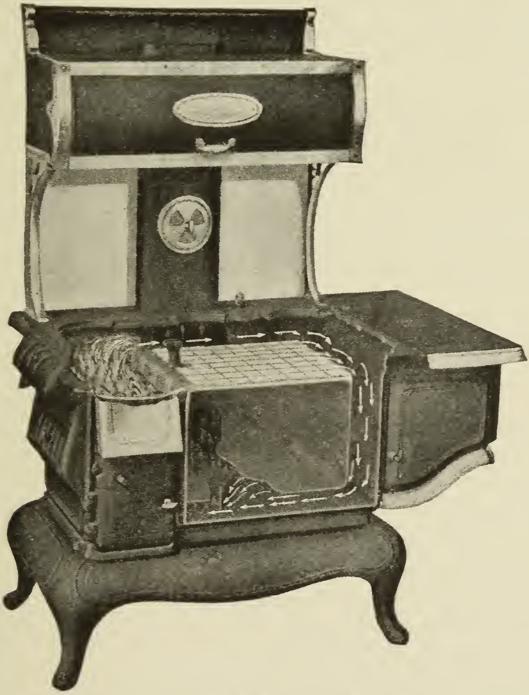
Wood, coal, gasoline, kerosene, manufactured and natural gas, are the fuels commonly used. Electricity is also used for cooking, but is not a fuel. The stove is the apparatus in which the fuel is burned and through which the heat is given off.

In *selecting a stove* or range, choose one that is plain in design and has little nickel finish. A stove covered with decorations is hard to keep clean. Many gas and electric ranges have the oven built on a level with the top of the stove. The oven is easier to use in this position than when underneath the burners.

Gas and *electric stoves* are now made with fireless cooking attachments for both boiling and baking.

While these are more expensive in price than other types, they are great savers of fuel when properly used.

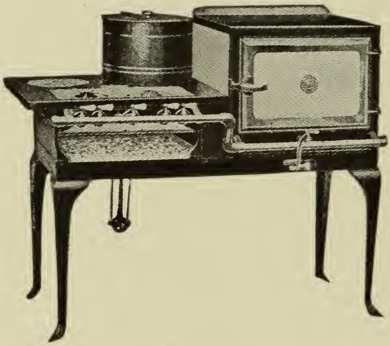
A stove must be in good condition if it is to do good cooking. A coal or wood range must have soot and ashes removed regularly from the inside of pipes, firebox and ash-pit. Whenever gas burners cannot be regulated to burn without a yellow flame, they must be taken apart and cleaned by boiling in a weak solution of soda.



Circulation of Air around Oven

There should be in the kitchen a supply of cooking *utensils* of the right kind to meet any need. Good utensils to use for boiling, stewing and steaming are made of aluminum or enamel ware of good grade; for baking, earthenware, glass, sheet iron and tin are used; iron is used for sautéing and frying.

Aluminum, wooden, or heavily plated tin *spoons* are needed in the kitchen. These are better than enameled spoons because enamel is apt to chip off when the spoon strikes hard surfaces. Steel *knives* are best with the steel blade running through and riveted into the wooden handle. One or more spatulas should be a part of the equipment.


FIRELESS GAS RANGE

Observe "hood" under which fireless cooking may be done. The oven may also be made "fireless."

Any device that aids in doing work as well, but more quickly and easily than it has been done before, is a *labor-saving device.*

Fireless cookers, pressure and steam cookers, cake and bread-mixers, food-grinders and double-boilers are examples of labor-saving devices that are useful in the kitchen. Every housekeeper should have as many labor-saving devices as possible.

HOME PROBLEMS AND QUESTIONS

Find the price of the following: a gas range, a coal or wood range, a two-compartment fireless cooker, food-grinders, double-boilers, spatulas, refrigerators, garbage-cans.

Look through the advertisements in the magazines and papers, at home or in the public library, and make a list of other labor-saving devices and cooking utensils not named in the lesson. How many of these have you seen used?

Bring the lists to school for discussion.

LABORATORY EXERCISES

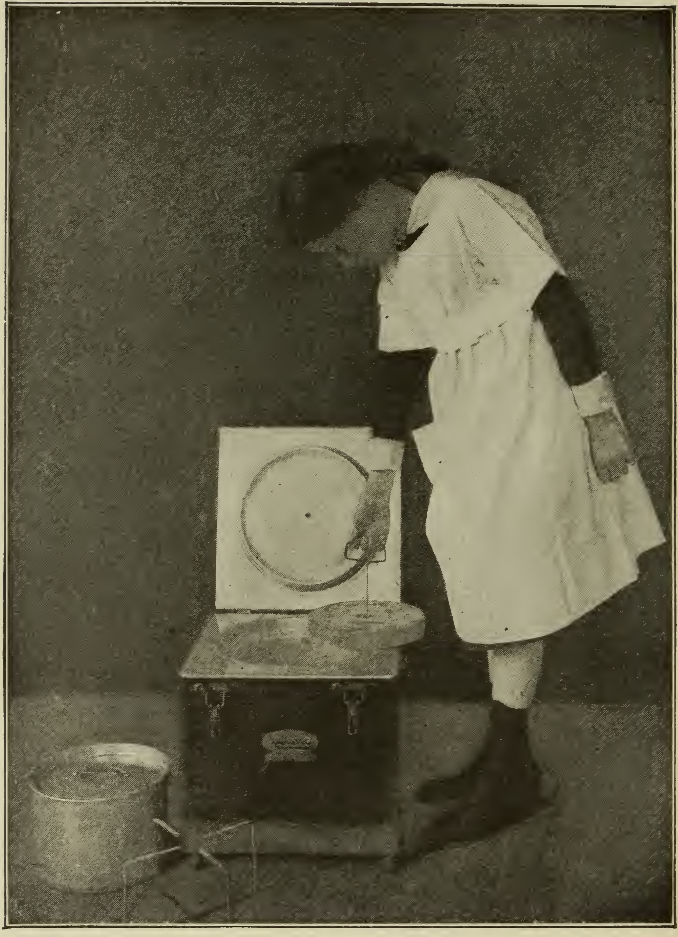
TEMPERATURES

Experiment:

Examine the thermometer to be used in taking temperatures.

1. Is it a centigrade or Fahrenheit thermometer?
2. What is "boiling-point" on each? freezing-point?
3. (*a*) What is the temperature of one cup of water in the top part of a double-boiler after the water in the lower part has been boiling twenty minutes? Continue boiling. Does the water in the top part of the double-boiler ever reach boiling-point? (*b*) What is the temperature of one cup of water in a small saucepan over direct heat when the first small bubbles appear on the surface? when the large bubbles come to the surface and break? when the fire is turned higher and the bubbles form and break more quickly? The vapor which comes off the surface of the water is called steam. Continue boiling the water for a few minutes; remove from the fire and measure the water. What has happened?

Examine the fireless cooker, if there is one in the laboratory; if not, the class may make one, following



The Fireless Cooker

Placing the heated stone in the cooker.

the directions given in Farmers' Bulletin No. 771, "Home-made Fireless Cookers and their Use", obtained by writing to the U. S. Department of Agriculture, Washington, D. C.

ROLLED OATS

3 c. boiling water 1 c. rolled oats 1 tsp. salt

Heat water to boiling point by placing the top part of the double-boiler over direct heat; add salt; stir in the rolled oats. Cook ten minutes. Place over water in the double-boiler; cook one hour.

This may be cooked in the fireless cooker.

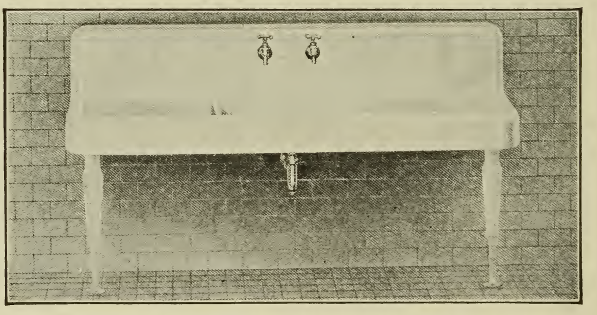
If the fireless cooker has a large compartment, fill the large kettle half full of boiling water, place the prepared oatmeal in a small tightly covered kettle, and set on the wire rack placed inside the large kettle, so that the hot water is below the top of the small kettle. Close the cooker and do not open until the food is needed for the meal. Cereals may be put in the fireless cooker at night and will then be ready for breakfast in the morning.

DISHWASHING

The housekeeper sometimes considers dishwashing "drudgery", and it may be so when poor equipment is used for the task, or when she does not know how to do the work correctly. The best type of housekeeper feels that every part of her work is worth doing well, and whenever she thinks about why she is doing the task, it ceases to be drudgery. To know the *reason for washing dishes* helps to make the work more interesting. Dishes are washed to make them more sanitary and more pleasing to use. It is not safe nor pleasant to eat from dirty or sticky dishes.

The *equipment* needed for washing dishes consists of plenty of clean hot water, good soap, or soap powder, scouring-powder, dishpans, dish-drainer, dishcloth and mops, dish-towels, bottle and sink brushes; and there may be added a plate-scraper, a metal dishcloth and soap-shaker.

There are *two kinds of water*, hard and soft. When soap will not make good suds in the water, it is because the water is "hard." Hard water is water that has taken up lime or iron from the soil, and is the kind that usually comes from wells. Rain water is soft water, and is better for washing dishes because soap makes a good suds in it. If hard water must be used, borax, ammonia, or a strong soap powder or soap must be added.



ONE-PIECE KITCHEN SINK; an excellent type

Soap is best for use when it is very dry. It may be purchased by the dozen cakes or bars, or by the box. Some persons make "soft" soap at home by boiling scraps of fat with lye made from wood ashes.

The steps in washing dishes correctly are:

1. Remove the dishes from the table. Remove the bits of food from the plates with the rubber

plate-scraper or a piece of paper. Rinse off very dirty dishes. Pile together dishes that are alike.

2. Put to soak all cooking utensils. Hot water should be put in those which have contained sugar or syrup, and cold water in those which have been used with milk, eggs, cereal, starch or flour.

3. Pour hot water in the dishpan, make a good suds with the soap, use a clean dishcloth (not a "rag") or mop, and wash every dish carefully. Do not have the dishpan full of dirty dishes while washing. Always wash the cleanest dishes first.

4. Place the washed dishes in a drain-pan or dish-drier, being careful not to crowd them. Crowding dishes in a pan is apt to chip them and makes it hard to scald them thoroughly. This pan or drier should be placed at the left of the pan in which the dishes are washed because this will save unnecessary motions in putting the dishes from one into the other.

5. Rinse the dishes thoroughly with boiling water, being sure that each dish has been rinsed inside and out. If the dishes have been scalded in a dish-drier, it may be set on the drain-board and the dishes allowed to dry without wiping. The silver and glass should be washed first. They will look best when wiped and polished dry with a towel. Some persons like to dry all the dishes with a towel. This is a good method, but it takes more time than drying them in a rack or drier.

6. Scrape out and rinse off the cooking utensils. Use plenty of hot soapy water for washing them; wash thoroughly, both inside and out, scouring if necessary. Rinse with boiling water and wipe dry. Steel knives may be scoured with scouring-powder applied with a cork.

7. Wash off the drain-boards and tables, and scour them with the powder and a brush if necessary. Use clean water for this. Wash out the sink and scour it with a brush and scouring-powder when the soapy water will not remove the stains.

8. Wash the dish-towels in clean soapy water, removing all spots. Rinse in clean water, shake out and pull into shape. Hang to dry on a rack for this purpose in the kitchen, or better still, hang outdoors in the sun. Wash and rinse the dishcloth or dish-mop.

9. Clean out the dishpan thoroughly, wipe it dry and put it away.

LABORATORY EXERCISES

CARE OF EQUIPMENT

The Sink

1. Find the waste-pipe; the trap. Of what value is the trap?
2. Of what material is the sink made?
3. Of what material are the drain-boards made?
4. Of what material are the faucets made?
5. To clean the sink:
   (*a*) Faucets — brass may be cleaned with scouring-powder. If stained, use vinegar or lemon juice before scouring; nickel needs only washing with soap and water.
   (*b*) Wash drain-boards and sink; see lesson above (Section 7).

Every sink needs a sink-strainer through which dish-water or other liquids may be poured, thereby catching all refuse. Clean boiling water should be poured down the waste-pipe after very greasy water.

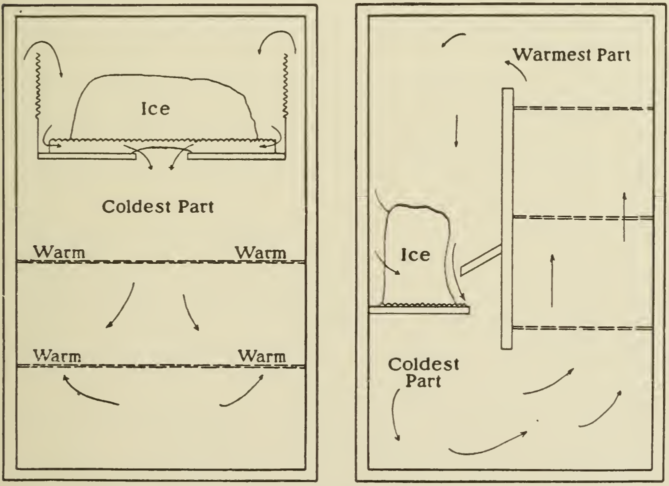
The Refrigerator

1. Find the waste-pipe. Into what does it drain? Can it be removed for cleaning?

2. Of what material is the lining of the refrigerator?

3. What other parts of the refrigerator may be removed when cleaning?

4. To clean the refrigerator:
   - (*a*) Remove immediately any food that has been spilled.
   - (*b*) Once a week remove all food and ice; take out the shelves and other parts; wash these and the inside of the ice-box with clean, warm, soapy water and rinse with clean cold water; a solution of washing soda may be poured down the drain-pipe. Do the work as quickly as possible.



Circulation of Air in Two Common Types of Refrigerator

The Garbage-Can

If no liquid material is placed in the garbage-can, the garbage may be wrapped in newspaper before placing in the can. This keeps the can in excellent condition.

1. To clean, when garbage is wrapped, wash out with clean, hot, soapy water once a week.

2. To clean, when garbage is not wrapped, scrub with a brush, using a strong washing-soda solution; rinse with boiling water; dry in the sun. A dirty garbage-can has a bad smell and attracts flies. A garbage-can must always be kept tightly covered.

RICED POTATOES

Wash and peel a potato. Cook in boiling salted water, allowing $\frac{1}{2}$ tsp. of salt to one pint of water. Boil gently. When the potato can be pierced to the center easily with a fork, remove from the water. Press through the vegetable press or ricer into a hot dish. Serve.

MASHED POTATOES

To the riced potato add two teaspoons of hot milk; one half teaspoon of butter; salt to taste. Beat with a fork until the mixture is light and fluffy. Place in a hot dish and serve.

REVIEW QUESTIONS

1. What equipment is needed for washing dishes well?
2. What are the two kinds of water used?
3. Which is the best kind to use for dishwashing? Why?
4. How should the dishes be prepared for washing? the cooking utensils?
5. State the steps in washing and drying dishes.
6. How should the dish-towels and dishcloth be cared for after dishwashing?
7. Have you ever washed dishes by this method?
8. Have you ever seen a dishwasher used?

THE BREAKFAST PLAN

There are many *types of breakfast* that may be served, and every family will have its own particular plan for this meal.

The foods generally used for breakfast are fruit, cereals, bread and beverages, with sometimes egg, meat or vegetable dishes.

The *menu* should vary with (1) the time of year, (2) the type of work which the members of the family are doing, (3) the kind of meal eaten the night before, and (4) the size, weight and age of the members of the family.

In the summer it is well to avoid eating much meat, and meat can easily be omitted from breakfast.

It is well, also, to eat less heat-producing food in summer than in winter, because then the body does not need so much heat to keep it warm.

When *too much food* is eaten, a good deal is lost because some foodstuffs cannot be stored in the body and must, therefore, be carried off from the body in the form of waste material.

If a man is doing hard work out of doors he needs more food than does the man who sits all day at his desk in an office, because the man in the office does not use so much muscular energy in doing his work as does the man who works with his muscles.

If dinner is the meal served in the evening, the family does not wish nor need much for breakfast the following morning. If a light supper is the last meal of the day, then more food should be served for breakfast.

The members of the family differ in size, weight and age, and the food eaten should vary in amount and kind. The baby and small child should not eat the same food, nor so much, as the man in the family. How then shall the meal be planned to suit each member of the family? It is a good plan to make a menu that contains enough food of the right kind for the man, and to have in that menu some food that will suit the small child.

The following are some *general suggestions* for planning the breakfast:

1. Breakfast consisting of fruit, bread and beverage; suitable for the man who works in an office and the woman who does light work. For the small child, cereal and milk would have to be added and tea or coffee omitted.

2. Breakfast consisting of fruit, cereal, bread and beverage; suitable for the man who does a good deal of walking but works indoors, and for the woman who does ordinary housework, office work, or teaching. With cocoa or milk as the beverage, this would be good for the small child, the schoolgirl or boy, and the college student.

3. Breakfast consisting of fruit, eggs, bread and a beverage, instead of No. 2. Milk and cereal, however, should be added for the child.

4. Breakfast of fruit, cereal, a meat or egg dish, bread and a beverage; suitable for the man doing hard manual work out of doors, or for women doing hard manual work. The meat should be omitted in the child's diet, and milk or cocoa used as the beverage.

5. Breakfast consisting of fruit, cereal, meat or egg dish, a vegetable, bread and a beverage. This breakfast is a very heavy meal and should be eaten only by a man doing hard manual labor out of doors in cold weather. Many families eating this type

of breakfast do so because they like it and not because they need the food in the daily diet. In many cases they would be in better health if less food were eaten.

HOME PROBLEMS AND QUESTIONS

Are these good breakfast plans? Why?

1. For a hot summer morning: stewed fruit, sausage, buckwheat cakes, coffee.

2. For a small child: coffee, cereal, meat dish and hot biscuit.

3. For a man doing hard manual labor out of doors: fruit, coffee, toast.

4. For the schoolgirl: fruit, cereal, cocoa and toast.

Make two good plans for your breakfast at this season of the year.

Make two good plans for the breakfast of a small child at this season of the year.

Bring these plans to class for discussion.

LABORATORY EXERCISES

FRUIT FOR BREAKFAST

ORANGES

1. Wash the orange, cut through crosswise, serve on plate.

2. Wash the orange, remove the skin and as much of the white portion as possible, divide in sections, arrange attractively on plate, serve.

3. Wash the orange, cut in halves, squeeze out the juice, using the lemon-squeezer; put juice in glass, cool, set on fruit-plate, serve.

BAKED APPLE

Wash the apple, remove the core, leaving the apple whole, and fill the cavity with sugar. Raisins or nutmeg may be used also. Put a little water in the pan to prevent burning. Bake slowly until the apple is tender when pierced with a fork.

BEVERAGES

Beverages are made by combining liquids and flavoring materials.

There are many kinds of beverages, examples of which are coffee, tea, cocoa, lemonade and grape juice.

Water is the liquid used in making most beverages. In addition to the water taken in beverages one should drink a great deal of pure water, because the composition of the body is two thirds water. One may go without food for weeks, but it is not possible to live very long without water. Most persons, because of the taste, like to drink hard water in preference to soft water. Hard water comes from wells and deep springs, and has collected certain mineral substances from the soil over or through which it has come.

When *the soil* is full of filth, the water flowing through it will be impure and may be the cause of typhoid fever, malaria, or other diseases. Impure water may be clear and sparkling in appearance, and the only way to be certain of its purity is to know about the source from which it comes. In the city, the water supply is so carefully watched that the water coming into the house is usually pure. If a well is so situated that the water coming into it passes through soil into which a barnyard or an outside toilet or a pig-pen is drained, it is likely to be dangerous to health.

When there is the slightest doubt about the purity of water, it should be boiled before drinking.

Boiled water has a flat taste because some of the air in it has been driven off by boiling. The taste may be improved by pouring the water back and forth between two pitchers, thus forcing air into it again.

Ice is frozen water, and is just as pure as the water from which it was made. Ice from a pond should never be dissolved in drinking-water or other beverages. *Artificial ice* is made by freezing water in tanks, the freezing temperature being secured by the evaporation of ammonia. This ice should be much purer than ice from ponds, lakes and rivers.

At school every student should use his or her own drinking-cup unless there is a bubbling fountain. It is dangerous to drink out of a cup that has been used by other persons, because if any one has a disease, such as diphtheria, sore throat or tuberculosis, it may be given to others who use the same cup.

LABORATORY EXERCISES

BEVERAGES

Experiment:

1. Examine coffee beans, finely ground, and pulverized coffee. What is the price of each?
2. Examine samples of tea, both green and black; compare the color and shape of the leaves. Are there bits of stem or other refuse present? Compare prices.
3. Examine cocoa nibs, pulverized cocoa.
4. Pour one half cup of boiling water over two teaspoons of cocoa. Observe the liquid.

5. Mix together one half cup of cold water and two teaspoons of cocoa; boil five minutes. Compare this with No. 4. What has happened?

COCOA

¼ c. cocoa
¼ c. sugar
⅛ tsp. salt
1 c. water
3 c. milk
Vanilla

Mix cocoa, sugar, salt and water. Boil ten minutes. Heat milk in double-boiler, add to this the cocoa paste. Cook twenty minutes. Add vanilla.

An attractive way to serve cocoa is to place a spoonful of whipped cream on top of each cup.

COFFEE

Coffee may be made in several ways.

1. Boiled coffee, made with egg.

1 heaping tbsp. of ground coffee
1 c. water
½ egg-shell or ¼ of an egg-white

THREE TYPES OF COFFEE-POTS

From left to right: drip coffee-pot, coffee percolator and pot for boiled coffee.

Mix together coffee and egg, using a little of the water; add the rest of the water. Boil gently for three to five minutes. Let stand in warm place for five minutes. Serve. The egg is used to settle the grounds.

2. Boiled coffee without egg.

Use the same proportions as in No. 1. Place the ground coffee in a cheesecloth bag, being careful to pack it very loosely; tie securely.

3. Percolated coffee.

Made in a percolator pot, constructed so that the ground coffee is placed in a container at the top. The water boils up through a tube to the ground coffee, and then drips back into the bottom of the pot.

There are many kinds of percolators sold.

4. Drip coffee.

Like coffee made in percolator, except that the coffee-pot is arranged so that water must drip through the ground coffee from the top.

TEA

1 tsp. tea	1 c. water

Heat fresh water to boiling-point. Pour it over the tea, let stand in a warm place three minutes. Pour off tea into hot teapot or cups. Serve at once.

Tea should never be boiled, nor the water allowed to stand on the tea leaves longer than three minutes, because the longer it stands the more tannic acid is present.

REVIEW QUESTIONS

1. What is a beverage?
2. Name some commonly used beverages.
3. Why is it important to drink pure water?
4. How should impure water be treated when it must be used for drinking?
5. From what source does the water supply come that is used in your school?
6. What is ice?
7. When may ice be put into beverages?
8. Where does the ice come from that is used in your neighborhood? What is the price of one hundred pounds?

BEVERAGES (*Continued*)

Coffee, tea, cocoa and chocolate are the beverages generally used for breakfast. *Coffee* and *tea* should be used only by grown persons; children may take cocoa.

The *coffee-bean* or berry is the seed of a fruit resembling a cherry, and is produced on an evergreen tree that grows in nearly all tropical countries. Most of our coffee comes from South America, mainly from Brazil. In preparing coffee for market the cherry-like fruit is allowed to ferment so that the pulp surrounding the seeds may become soft and can be removed. These seeds contain two "beans" which grow with their flat sides together and are inclosed in a husk. This husk has to be dried and then removed, when the beans fall apart. The coffee-beans are then shipped to the country where they are to be sold. The beans are roasted to make them brittle and to develop flavor, and are sold to the housekeeper in this form, or as "*ground coffee*."

Coffee loses its flavor and *aroma* very quickly after being ground if it is left in an open container, and for this reason some prefer to buy the roasted coffee-beans and grind them only as needed. Ground coffee should be sold in air-tight cans, but if sent from the store in paper sacks should be emptied into air-tight cans at once.

Coffee contains substances that are often harmful for grown persons and are never good for children; one is caffeine, a substance that stimulates the nerves; another is tannic acid, which may disturb digestion.

Most of the *tea* we use comes from China, Japan, Ceylon and India. Tea is made from the leaves of a plant called Thea. The plant sends out four sets of new shoots a year, and the leaves from these shoots are gathered and cured for tea.

There are *two types of tea,* black and green tea. Green tea is made by drying the tea leaves at a high temperature, which causes them to keep their green color and to curl up. Black tea is made by allowing the leaves to wither and ferment, which causes them to turn dark before being dried. This process gives black tea a flavor different from that of green tea.

Tea contains a substance called "theine" which acts as a stimulant to the nerves. There is also present tannic acid, which is bad for the digestion.

Cocoa is produced from the pod of the cocoa tree which grows in tropical countries. The pod is shaped somewhat like a cucumber, and inside are a large number of seeds surrounded by pulp. The seeds are removed from the pulp and, after being allowed to ferment a few days, are roasted. The husk is then removed and the seed is divided into two parts which are called "*cocoa nibs.*"

When cocoa nibs are ground and pressed into a cake, the cake is known as *chocolate.* This chocolate is rather bitter in taste and is used in cookery. When sugar is added to the cake it is called *sweet chocolate.*

Cocoa is made from chocolate by removing a large part of the fat. It is then ground and sold in bulk or in tin containers. The fat that is removed from the chocolate is used for *cocoa butter.* Cocoa has a good deal of food value, and when served as a beverage in which milk is used adds food value to a meal.

LABORATORY EXERCISES

A RECEPTION FOR MOTHERS

Invite the mothers of the girls to the school for the laboratory period. The members of the class should receive and entertain them. Refreshments of tea, coffee or cocoa, sandwiches and marguerites, may be prepared and served by the girls.

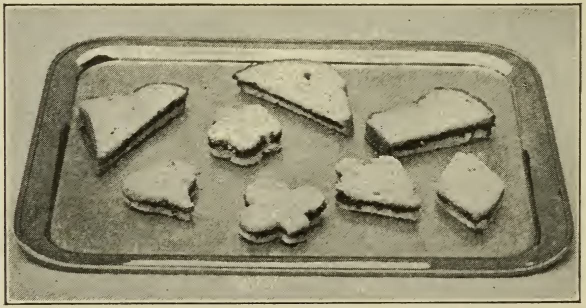
MARGUERITES

12 wafers
1 egg-white
2 tbsp. powdered sugar
½ tsp. salt
¼ tsp. vanilla
½ c. chopped raisins or nuts, or the two mixed

Beat the egg very stiff. Sugar should be pressed through a wire sieve before using. Add the other ingredients to the sugar and mix carefully with beaten egg-white. Spread on top of the wafers. Brown in a moderate oven.

SANDWICHES

Cut the bread into very thin slices; cream the butter by mashing and beating with a fork. Butter the slices of bread, add jelly if desired, lay the slices together evenly. Sandwiches are often cut into fancy shapes, such as round,



Sandwiches Made in Different Shapes

triangular, rectangular, or square. The crust may be removed, if desired. The bread scraps may be saved for a bread pudding. Wrap the sandwiches in a dry cloth, then in a slightly damp cloth until ready to serve.

REVIEW QUESTIONS

1. Describe the preparation of coffee for market.
2. How should coffee be cared for after it is purchased?
3. From what countries does most of the tea used in this country come?
4. Describe the preparation of tea for market.
5. Why are tea and coffee harmful to many people?
6. Should children drink tea or coffee?
7. What is cocoa? chocolate? cocoa nibs?

FRUIT

Fruit is very valuable in the diet and, if possible, should be included in the menu every day. *Fresh fruit* can be purchased in the market at all seasons of the year. *Canned* and *dried fruits* can always be substituted when the fresh fruit is too expensive or not available.

Fruits are *composed* largely of water but contain sugar, which is one form of carbohydrate, very small amounts of protein and fat, and mineral matter. Fruit also contains vitamines. The *mineral matter* in fruit, including iron, phosphorus, lime, magnesia and potash, is very valuable to the body.

The botanist says that fruits are the *seed-bearing parts* of the plant, but such foods as *tomatoes* and *cucumbers*, which really are fruits, we class as vegetables.

When fruits are considered as to their food value they are sometimes classified as (1) *flavor fruits*, containing a very large amount of water and very small amounts of the foodstuffs, and (2) *food fruits,* containing less water and larger amounts of the foodstuffs. Examples of flavor fruits are strawberries and watermelons. Examples of food fruits are bananas, dried figs and dates.

Most persons like fresh fruit, but it does not agree with everyone. Cooked fruit can often be eaten when the raw fruit cannot, because the *cooking* softens the fruit and kills bacteria that may be present. Children should be given cooked fruit in preference to raw fruit. Neither *green fruit* nor *overripe fruit* should be eaten.

Fruits are least expensive when *purchased in season,* that is, when they are being produced on the farms and in the gardens of the community. When fruits have to be shipped long distances they must be sold at higher prices.

Fruit should be cleaned carefully before being used as food. Even when the skin of the fruit is to be removed, it should be washed carefully. One handles both the skin and the fruit at the time of peeling. Berries and similar fruits should be washed thoroughly before being eaten or cooked.

LABORATORY EXERCISES

FRUIT FOR BREAKFAST

GRAPEFRUIT

Wash grapefruit and cut crosswise into halves. Loosen the thick white skin by cutting each section of the fruit from the skin. Use scissors to cut the skin loose from the rind. Cut the core loose from the rind and remove white skin with core. Fill center of grapefruit with powdered sugar if desired. Serve on fruit-plate.

Have you ever eaten grapefruit prepared in any other way?

APPLE SAUCE

1 medium-sized apple
$\frac{1}{4}$ c. water
$\frac{1}{8}$ tsp. cinnamon or nutmeg (if desired)
$\frac{1}{2}$ to 1 tbsp. sugar

Wash and pare the apple. Cut it into quarters and remove the core. Place in saucepan, add the water, cover tightly. Boil gently until apples are tender when pierced with a fork. Add sugar and nutmeg or cinnamon. Cook until sugar is melted.

Other recipes for using apples may be brought from home by members of the class. Are all the recipes good ones to use for breakfast?

REVIEW QUESTIONS

1. Name the fruits that can be used for breakfast.
2. Which of these grow in your locality?
3. What are the foodstuffs found in fruits?
4. What is meant by purchasing "in season"?
5. What fruits are "in season" at the present time?
6. How much are apples per pound? How many pounds are in a peck and in a bushel of apples?
7. How does the price per bushel compare with the price paid when apples are bought by the pound?
8. What is the price of grapefruit? What does one serving cost?

MILK

Milk is one of our most important foods. When we drink milk we should remember that we are taking *a real food* and not merely something to take the place of water. When enough milk is used, some other food can be left out of the diet. Milk is a *perfect food for infants* or young animals and is a *good food for grown persons.*

When the chemist divides milk into its parts he finds the following foodstuffs: protein, carbohydrates, fat, mineral matter and water.

The protein in one glassful of milk is equal to the protein contained in one large egg or in one and one third ounces of beef. Therefore when we use enough milk in a meal we do not need meat. The milk may be used in custards, escalloped and creamed dishes, or it may be used to drink.

When the milk stands, the fat separates and comes to the top. This fat is then called *cream.* The milk remaining when the cream is removed is *skim milk.* The milk without its cream removed is *whole milk.*

The *mineral matter* in milk is very valuable because it is in a good form for the body to use. Milk also contains the *vitamines* which are so important.

Every boy and girl should use a great deal of milk, — some say a pint a day for all children over six years old, and a quart a day for the child under six.

Clean milk is the only safe milk. *Dirty milk* may contain disease germs that cause typhoid fever, tuberculosis, or other diseases. Clean milk comes from clean cows kept in clean barns. The milk must be handled by persons with clean hands and clean clothes, and it must be placed in clean pails, bottles, or pans.

If *milk is purchased* from a store or dairy wagon it should be in bottles, tightly covered. The bottles must be kept in a cool place where there are no flies. If a bottle of milk is put in the refrigerator it must always be tightly covered.

There are several kinds of milk that can be purchased. Milk that is heated to the boiling-point, 212° F., and cooled before it is sold, is called *sterilized milk.* The boiling changes the flavor but kills harmful bacteria that may have been in the milk.

Pasteurized milk is milk which has been heated and kept at a temperature of 140° to 145° F. for twenty to thirty minutes, and then cooled quickly. This process kills bacteria that may cause disease. *Certified milk* is milk that is guaranteed by the producer to be especially clean and pure.

At the grocer's we buy *condensed* or *evaporated milk* in tin cans. This is milk that has had most of the water taken out of it and afterwards has been canned. This is useful to take on camping trips or journeys where fresh milk cannot be obtained. *Powdered milk* may also be found in the stores. This is a dry powder and must have water added before it is used.

Fortunate is the child who lives on a farm and can have all the milk desired. Milk, however, must be regarded as *a very necessary food* and should be used by every family, whether in town or country. It is poor economy to reduce the amount of milk purchased. Some other food could be better spared.

LABORATORY EXERCISES

MILK

WHITE SAUCE

White sauce is made by combining a liquid, a fat and a thickening agent. Cream sauces and gravies are examples of white sauce. White sauce is of different thicknesses, according to its use. The following are the general proportions for white sauce:

No. 1 White Sauce or Thin White Sauce

1 c. liquid	1 tbsp. fat	1 tbsp. flour

Used for cream soups and certain sauces.

No. 2 White Sauce or Medium White Sauce

1 c. liquid 1 tbsp. fat 2 tbsp. flour

Used for vegetables, gravies and sauces.

No. 3 White Sauce or Thick White Sauce

1 c. liquid 2 tbsp. fat 3 tbsp. flour

Used for thick sauces, creamed oysters.

No. 4 White Sauce or Very Thick White Sauce

1 c. liquid 3 tbsp. fat 4 tbsp. flour

Used for croquettes.

There are three ways of combining the ingredients in making white sauces:

Method No. 1. Heat part of the milk in double-boiler; mix the remaining milk with the flour, and add gradually to the heated milk, stirring thoroughly; add the fat just before removing from the fire. Cook twenty to thirty minutes in the double-boiler, stirring occasionally.

Method No. 2. Heat milk in double-boiler; mix into a paste the fat and the flour; add to the heated milk, stirring until no lumps are present; cook twenty to thirty minutes.

Method No. 3. This method is often used in making gravies. Heat the fat slowly; add the flour, and stir until a smooth paste is formed; add the milk, stirring constantly to prevent lumping. Cook six to ten minutes.

CREAM TOAST

1 tbsp. butter
1 tbsp. flour
1 c. milk or cream
¼ tsp. salt
4 slices bread

Make white sauce from the first four ingredients. While it is cooking make the toast, being careful not to burn the bread. Dip each piece in the white sauce, place in a warm dish and pour on the remaining white sauce. Serve in warmed dishes.

FRENCH TOAST

1 c. milk	$\frac{1}{4}$ tsp. salt
1 egg	6 slices stale bread

Beat the egg slightly, add salt and milk, dip each piece of bread in the mixture. In a hot frying-pan place some fat. When it is melted, place the bread in the frying-pan and brown on both sides. Serve with syrup.

CARAMEL SYRUP

Melt one half cup of sugar in a frying-pan and heat until it is a brown syrup; add one half cup of boiling water; boil until the syrup is as thick as desired. Serve with the French toast.

REVIEW QUESTIONS

1. What is clean milk?
2. Why is it necessary to use clean milk?
3. What is Pasteurized milk? sterilized milk?
4. Can either of these be purchased in your neighborhood? Where?
5. What is the price of milk per quart? What is the price of one pint of cream? of one half pint?
6. Can skim milk be purchased from your dairy man? Compare the price of this with the price of whole milk.
7. In what ways may skim milk be used?
8. How should milk be cared for in the home?
9. What is condensed milk?
10. Does your grocer sell condensed milk? What does it cost per can? How much does the can contain?
11. Is milk a valuable food? Why?
12. For what food may milk be substituted?

CEREALS

Cereals are derived from the seeds or grain of certain cultivated grasses. The most commonly used are corn, oats, wheat, barley, rye, buckwheat and rice. From these are made many different kinds of flour, meal and breakfast foods.

Cereals are very *valuable as food* because they contain all the foodstuffs. Carbohydrates are found in the largest amount. Carbohydrates in food are found mainly in three forms: (1) starch, (2) sugar and (3) cellulose. Starch and cellulose are the forms found in cereals.

The grain is made up of cells, the walls of which are of cellulose, and inside is the starch. Cellulose is not easily digested and is of practically no value, but it is useful to the body by furnishing "bulk" which causes the food to pass through the digestive system in a better and easier way.

Cereals contain, also, large amounts of protein and mineral matter; therefore they are useful both for growth and for producing heat and energy.

When the chemist divides a cereal into its parts he finds 65 to 75 per cent of carbohydrates, 10 to 12 per cent of protein, 2 to 8 per cent of fat, about 2 per cent of mineral matter and 10 to 12 per cent of water.

Cereals used for *breakfast foods* may be purchased at the stores in sealed packages, or in bulk by the pound. Those in packages are usually the cleaner but are more expensive.

We can buy *ready prepared breakfast foods*, such as cornflakes, puffed cereals and shredded wheat, or we may purchase the kinds that must be cooked before serving, such as rolled oats and cream of wheat. The prepared breakfast foods cost more per pound than those which must be cooked.

Cereals do not keep well and it is not wise to buy them in large quantities, even though the price may be lower when bought in that way.

Cereals are cooked for three reasons: (1) to soften the cellulose, (2) to cause the starch grains to swell and burst and (3) to make the taste better. In cooking cereals a fireless cooker may be used.

When cereals are cooked on the stove, always use a double-boiler. This is to prevent burning.

HOME PROBLEMS AND QUESTIONS

Make a list of the cereals grown in this region. Which are the most common?

Make a list of the prepared cereals that can be purchased at the grocery.

Make a list of the cereals to be cooked.

What is the cost of rolled oats by the pound when sold in bulk? What is the cost per box for rolled oats? Read the label on the box to find what amount of oats the box contains. Compare the price of that in the box and that in bulk.

LABORATORY EXERCISES

BREAKFAST CEREALS

CREAM OF WHEAT WITH DATES

2 tbsp. cream of wheat	$\frac{1}{6}$ tsp. salt
$1\frac{1}{4}$ c. water	4 to 6 dates

Heat water to boiling-point, add salt, stir in cream of wheat gradually. Cook about thirty minutes in double-boiler. When the cooking is about half done, add the dates, which have been cut into fine pieces.

PREPARED CEREALS

Place cereal on pan and heat in oven until crisp. Serve with fruit if desired. Milk or cream may be used with a cereal. Sometimes hot milk is poured over shredded wheat before serving.

TOAST

Cut slices of bread evenly and of even thickness. Toast in oven or on toaster until the slices are of an even brown on both sides, and until the bread is thoroughly dried and crisp. Toast may be served in this form and then it is called "dry toast." Butter may be spread on it and the toast placed in a hot oven until the butter is melted, when it is known as "buttered toast." "Cinnamon toast" is made by spreading toast with butter and sprinkling with sugar and cinnamon, mixed, using three parts of sugar to one of cinnamon. "Dipped toast" is made by quickly dipping toasted bread into hot salted water.

Which kinds would be best to serve for breakfast?

BREAD

In any menu we usually like bread in some form. Bread is another way of serving cereals, because all the flours and meals from which bread is made are prepared from cereals. The cereal used most commonly in making bread is wheat. The product made from wheat and used in bread is called *flour*. There are many different brands of wheat flour and these will make different kinds of bread. The flours are not alike because they are made from different kinds of wheat and by different processes. A great deal of our flour comes from the Northwestern

States and is made from wheat sown in the spring and called *hard-wheat flour.* Wheat grown in the Central States is usually sown in the fall and the flour made from it is called *soft-wheat flour.* Both can be used in bread-making.

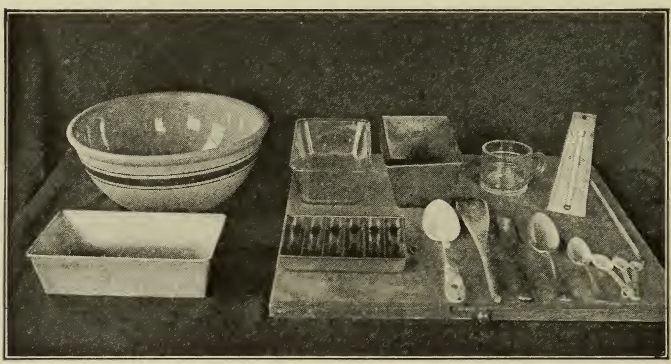
Flour that is to be used for bread-making should be creamy in color, rather gritty in feel, and if pressed in the hand should fall apart when released. Flour may be purchased by the barrel, by the sack, or by the pound. It is cheaper when purchased in quantity, if the housekeeper has a suitable place for storing a large amount. Flour must be kept in a clean dry place and in a well covered container.

Whole-wheat flour and *Graham flour* are types of wheat flour used for bread-making; these contain bran (the outer covering of the wheat grain) and other parts of the grain not found in white flour. These are valuable in the diet on account of the mineral matter and vitamines they contain.

The material in flour that is important in bread-making is the *gluten,* which is a form of protein that when mixed with water forms an elastic mass. It is the gluten that makes it possible to stretch and pull the dough without its breaking apart.

Yeast is one of the important materials used when *light* bread is made from wheat flour. It is the yeast that makes the dough rise and become light. Yeast, as it is used in bread, is made up of a large number of tiny plants, each too small to be seen by the naked eye. Under a powerful microscope they appear as little cell-like plants. When the plants are put into bread dough they find food material and moisture in the flour and other ingredients, and begin to grow and produce more cells. During this growing process a gas is formed which is called carbon dioxide. This gas stretches the gluten in the bread dough and causes the whole mass to *rise*. Alcohol, also, is produced during the growth of the yeast plant, but both the gas and the alcohol pass out of the bread during baking.

The yeast plant, in order to grow properly, must have (1) food and (2) moisture, both found in the dough, and (3) warmth, obtained by keeping the dough in a warm place. The yeast plant is like all other plants in that it will be killed if it gets too hot. A cold temperature does not kill the plants, but they will not grow when cold.



EQUIPMENT FOR BREAD-MAKING

Yeast may be purchased at the store in *dry yeast cakes* or in the form of *compressed yeast*. In the dry yeast the plants are mixed with meal, then dried, and wrapped for sale. The compressed yeast cake contains growing plants with enough food and moisture to permit growth for a few days. It cannot be kept long, however, and usually is purchased fresh for each baking.

Liquid yeast is a third form in which yeast is kept, and is sometimes called "beer yeast" or "starter." It contains the active growing plants and, in a cool place, can be kept for several days.

LABORATORY EXERCISES

YEAST BREAD

Bread is made in two ways: (1) by the "long process", in which a sponge is used and this sponge is allowed to stand, usually overnight, before being made into dough, and (2) by the "short process", in which no sponge is used, but the dough is made at first. The second is the more modern method, and is popular because it requires much less time for making bread than the "long process." "Short-process" bread is most easily made by using compressed yeast.

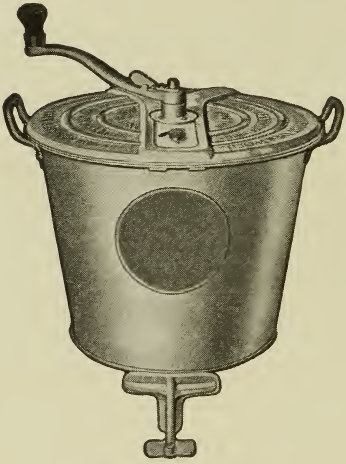
RECIPE FOR ONE LOAF OF BREAD

1 c. liquid (milk or water, or the two mixed)
1 tsp. salt
1 tbsp. sugar
1 tbsp. fat
3 c. flour (about)
1 compressed yeast cake

The large amount of yeast is used in order that the bread may be made and baked in two or three hours. At home, one cake of yeast would do for three or four loaves of bread.

Place the salt, sugar and fat in a mixing-bowl. Scald the liquid and pour over the ingredients in the mixing-bowl. Let stand until lukewarm. While this is cooling, place the yeast in 2 tbsp. of lukewarm water to soften. Add this to the lukewarm mixture in the bowl. Stir thoroughly. Sift flour into the liquid mixture gradually, stirring thoroughly. As soon as it is possible to knead the dough without having it stick to the fingers, place it on a floured bread-board and knead until it is smooth in appearance and elastic to touch. Clean out the mixing-bowl, grease, place dough in bowl. Cover with a lid. Set mixing-bowl in a dishpan half full of lukewarm water; put in a warm, but not hot, place. If bread is made in hot weather the mixing-bowl need not be placed in the water. Bread dough kept at 80 to 86° F. rises best. Use a thermometer to test the dough. Experienced bread-makers can tell by the "feel" of the dough whether it is warm enough.

When the dough has doubled in size, knead again, adding no flour except what is needed on the board to keep the dough from sticking. Shape into a loaf and place in a well greased bread-pan. Grease the pan by using a piece of oil paper on which has been placed a little fat, or use a brush made for the purpose. Cover the pan and set where the proper temperature for rising may be maintained. When the loaf is doubled in size, place in an oven heated to 400° to 425° F. Gradually lower the temperature to 380° F. Use an oven thermometer. The loaves should be turned around in the oven once or twice during the first few minutes of baking, so that the shape of the loaf will be good. No brown crust should form on the bread until after the first ten or fifteen minutes. Bake one hour.



BREAD-MIXER

Remove bread from pan and place it, uncovered, on a bread-rack to cool; or place loaf against pan in such a way that no side touches a flat surface.

OTHER WORK WITH BREAD

While bread is baking, score it, using the score card given in the next section.

A lesson in kneading bread might be given, using one large portion of dough which may be prepared before the class assembles.

If there is a bread-mixer in the equipment, examine it. Perhaps there will be dough set to rise in it before the class begins, so that the kneading may be done by the class.

REVIEW QUESTIONS

1. What kinds of wheat flour are used for bread-making?
2. State the necessary qualities of white flour that is good to use for bread-making.
3. How is bread flour purchased? What is the price of one pound of flour in bulk? of a 25-lb. sack? of a 50-lb. sack?
4. What is gluten? How is it valuable in bread-making?
5. What is yeast?
6. In what forms do we have yeast for bread-making?
7. How does yeast make dough rise?
8. Would yeast grow if placed in water alone? Why?
9. What effect does a hot temperature have on yeast? a cold temperature? When does this have a great deal to do with bread-making?
10. From what section of the country does a great deal of flour come?

BREAD (*Continued*)

Bread should be *thoroughly baked*, because during the baking process the yeast plant and other bacteria present are killed, and other changes also take place that make the bread more easily digested. It is better to bake one loaf in a pan instead of two or three or four loaves together in a larger pan.

Bread that is *well baked* is an even golden brown all over; and when the bread is twenty-four hours old the crumb from the middle of the loaf will crumble and not form "dough-balls" when rubbed between the fingers. Bread that has just been baked is hard to digest because it forms a pasty mass in the mouth and is not chewed so thoroughly as it should be. It is better for use after standing twenty-four hours.

Bread *should be kept* in a metal container rather than in a wooden or earthenware jar. The container should be washed and scalded often with boiling water, and may be placed in the sun to dry thoroughly. Scalding water and sunshine will kill any bacteria that may be in the box which would cause the bread to spoil. Bread should not be wrapped in a cloth while warm because this is apt to spoil the flavor.

Good Loaves of Bread

A great deal of *baker's bread* is now used, and in almost any locality good bread of this kind can be obtained. The large modern bakeries make good clean bread. When we buy bread from the store it is well to know whence it comes and to find out if it has been properly made and cared for. A great deal of bread is wrapped in paper before it leaves the bakery and this is usually the cleanest bread that can be bought, as all dust, flies, dirty hands and dirty clothes have been kept away from it.

A slice of baker's bread usually does not contain so much food value as a slice of home-made bread of the same size, because it does not weigh so much and therefore contains less flour and probably less milk and fat.

A girl should know how to make good bread, even though the bread used in her home is bought from the baker. The United States government considers bread-making such an important thing for a girl to know that the Department of Agriculture has organized bread clubs in all sections of the country. The girls who belong to these clubs learn to make bread by doing it many times and then entering a loaf to be judged in a contest with other girls. To decide just how well she has learned to do the work, the judge uses the Standard Score Card for Bread that has been adopted by the United States Department of Agriculture.

SCORE CARD[1]

1. General appearance:	
Shape	5
Smoothness of crust	5
Depth and evenness of color	5
2. Lightness	10
3. Crust:	
Thickness	5
Quality (crispness and elasticity)	5
Color	10
4. Crumb:	
Texture (size and uniformity of cells, thickness of cell walls)	15
Elasticity (softness and springiness)	15
5. Flavor (taste and odor)	25
Total	100

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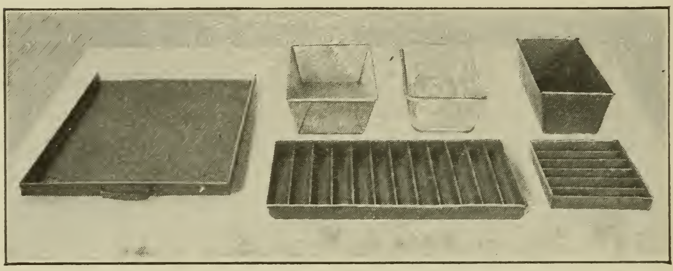
[1] From Farmers' Bulletin 807, "Bread and Bread-making in the Home", U. S. Department of Agriculture.

One of the favorite ways of preparing light bread for breakfast is to make it into toast. Toast is easier to digest than white bread, when it is properly made, because there are certain changes that take place in the starch during the toasting. In making dry toast, the slice should be dried out and evenly browned on both sides.



Bread-pans, Bread-stick Pans and Baking-sheet

All clean scraps of bread and toast should be dried and made into crumbs; these can be used in many ways.

Waffles, batter cakes, muffins, popovers and biscuits may be substituted for yeast bread in the breakfast plan.

In some parts of the United States hot breads are used at every meal, and most of the breads used are quick breads. Quick breads are made to rise in a different way from yeast breads. We will study in another lesson the methods used.

LABORATORY EXERCISES

ROLLS AND BATTER CAKES

Experiment: Mix 1 tbsp. flour, 1 tbsp. sugar, $\frac{3}{4}$ cake compressed yeast, 5 tbsp. cold water to a smooth paste.

Divide into three parts, place each in a tumbler and label 1, 2 and 3.

(*a*) Fill No. 1 with boiling water, place glass in bowl of boiling water, let stand in a hot place fifteen minutes.

(*b*) Half fill No. 2 with lukewarm water, let it stand fifteen minutes in a temperature of 80° to 90° F.

(*c*) Fill No. 3 with cold water, place it in a bowl of cracked ice, or outside the window if the weather is freezing, for fifteen minutes.

Observe the foam on top of each glass — the more foam the more active is the yeast.

Which has produced the most foam? What causes the foam? What does this teach about the temperature for bread-making?

(*d*) Place $\frac{1}{4}$ yeast cake in 2 tbsp. water. Let it stand fifteen minutes. Has any foam come to the top? Why?

(*e*) Let No. 3 stand in a temperature of 80° to 90° F. for one hour. Has any change occurred in contents of glass? Why?

(*f*) Remove No. 1 from bowl of boiling water, let it stand in a lukewarm place for one hour. Has any change occurred in contents of glass? Why?

PARKER HOUSE ROLLS

1 c. scalded milk
1 tbsp. butter
1 tbsp. sugar
$\frac{1}{2}$ tsp. salt
$\frac{1}{2}$ yeast cake dissolved in $\frac{1}{4}$ c. lukewarm water
3 c. flour (about)

Pour scalded milk over salt, butter and sugar. When mixture is lukewarm, add yeast and one half the flour. Beat until smooth; cover, and let rise. Stir in flour until dough is stiff enough to handle. Knead until smooth and elastic. Let rise again, then turn out on bread-board, roll and pat the mixture until it is one third inch in thickness. Cut with biscuit-cutter. With the handle of a knife which has been dipped in flour, make a crease through the middle of each piece. Brush over each piece with butter; fold, and press edges together. Place in greased pan, one inch apart, cover and let rise. Bake fifteen to twenty minutes in a hot oven.

The long process for bread-making is used in making these rolls. In what other ways may bread dough be used? Perhaps the class can bring some good recipes from home.

BATTER CAKES

$\frac{3}{4}$ c. milk	$\frac{1}{4}$ tsp. salt
1 egg	2 tsp. baking powder
1 tbsp. melted butter	1 c. flour (about)

Add the well beaten egg to the milk. Mix together the dry ingredients. Sift slowly into egg and milk mixture, beating thoroughly. Drop by spoonfuls on a hot greased griddle. Cook on one side until top is puffed and full of bubbles and edges are crisp. Turn with a spatula or pancake-turner, and cook on the other side. Serve immediately on warmed plates.

Batter cakes are also known as griddlecakes.

Of what material are griddles made? What do they cost? How should they be cared for?

Perhaps some of the class will make waffles instead of the batter cakes. Some one will have a good recipe, or one may be found in the cook book.

EGGS

Hen, duck, goose, turkey and guinea-fowl eggs are used for food in this country. The *hen's egg* is the one most commonly found in the market. Perhaps the members of this class who live in the country have used some other kinds of eggs.

The egg has in it food for the baby chick and for that reason contains all the foodstuffs required for its growth. When the chemist divides the egg into its parts he finds about 12 per cent of protein, about 9 per cent of fat and, in addition, water and mineral matter. Eggs may replace meat in the diet because they contain a large amount of protein, which is easily digested and used in the body.

When buying eggs in the market it is often difficult to get them fresh. A *fresh egg* need not be newly laid, but must be in good condition for human food, although it may be several days old. Eggs that have been treated or stored are not fresh eggs.

Eggs cannot be kept in good condition for a long period unless some method of preserving them is used. The shell of the egg is porous and allows bacteria from the air to pass through, thereby causing the egg to spoil. The home methods found to be best for preserving eggs are by the use of *water glass* or *lime water.* These materials may be purchased from the druggist and should be combined with clean boiled water. After the eggs are placed in the liquid, the container should be kept in a cool place. Eggs that are laid in April, May, or June are the best for preservation, and are also lower in price than at any other season. Large numbers of eggs are put in cold storage every year and these are the eggs that are sold during the winter as "*storage*" or "*packed*" *eggs.*

Eggs are usually sold by the dozen, but as they vary greatly in size and weight, it would be better if they were sold by weight.

Eggs that are "soft-cooked", at a temperature below that of boiling water, are most easily and quickly digested. "Hard-cooked" or hard-boiled eggs are thoroughly digested when not eaten hurriedly.

Eggs are very good for children, and are among the first foods added to the milk diet of the small child.

LABORATORY EXERCISES

EGGS FOR BREAKFAST

SOFT-COOKED EGGS

Never cook an egg at boiling temperature, as this makes the white tough. Place one egg in a pint of boiling water in the top part of the double-boiler. Place boiling water in lower part of double-boiler. Remove from fire and set in warm place. Cook for the length of time desired — five minutes for a soft-cooked egg, seven to ten for a medium-cooked egg. If the eggs have come out of the refrigerator and are very cold it will require a longer time to cook them.

How shall soft-cooked eggs be served for breakfast?

HARD-COOKED EGGS

Place one egg in a pint of boiling water, remove from fire, cover tightly; set in a warm place forty-five minutes to one hour. Using a double-boiler for this is a good method.

Place one egg in a pint of boiling water. Boil for twenty minutes.

When the two eggs are done, examine the whites. Which is the more tender?

What are some of the ways in which to use hard-cooked eggs?

POACHED EGGS

Have a frying-pan two thirds full of water at simmering point, to which salt has been added. In this may be placed muffin rings if they are available. Break each egg separately, pour carefully into muffin ring or water. Do not allow the water to boil. When the egg-white is firm, remove eggs from water, using a pancake-turner. Place each egg on a piece of buttered toast arranged on a warmed platter.

SCRAMBLED EGGS

3 eggs	$\frac{1}{16}$ tsp. pepper
$\frac{1}{4}$ c. milk	$\frac{1}{8}$ tsp. salt
1 tbsp. butter	

Beat eggs slightly, add milk and seasoning. Melt butter in top of double-boiler, turn in mixture and cook very slowly, stirring often until white is set. Serve on warmed platter. Bits of chopped ham or other meat may be added if desired.

PUFFY OMELET

4 eggs	1 tsp. salt
2 tbsp. milk	Pepper

Separate the yolks and whites of the eggs. Beat the yolks of the eggs until " creamy " and add the milk, salt and pepper. Beat the whites until they are stiff. Pour the yolks over the whites and fold together carefully. Place in a frying-pan one tablespoon of butter. When it is melted pour in the omelet. Cook on top of the stove until the omelet is slightly browned on the bottom. Set in oven and bake slowly until omelet is " set " and browned on the top. Have ready a warmed platter. Loosen the omelet from the pan with a spatula. Slide it half-way from the pan to the platter and then fold the half of the omelet in the frying-pan over the half on the platter. Serve.

Folding the Omelet as It Comes from the Pan

Grated cheese, minced ham, or chopped parsley may be sprinkled over the omelet before it is folded, in order to vary the flavor.

An omelet-pan may be used in place of the regular frying-pan in making the omelet.

REVIEW QUESTIONS

1. What kinds of eggs are used for food in this country?
2. What foodstuffs does an egg contain?
3. What food may eggs replace in a meal? Why?
4. What other food have we studied which is similar in food value to eggs?
5. What is a fresh egg? a packed egg?
6. Have you ever seen eggs being packed at home for winter use? How was it done?
7. What is the price per dozen for packed eggs? for fresh eggs?
8. Weigh three small eggs, then weigh three large eggs. What is the difference in weight per dozen? What does this prove about purchasing eggs by count or by weight?

THE DINING ROOM

The *dining room* should be a light, cheerful room, situated so that the sunlight reaches it at some time every day, preferably in the morning. This room should be large enough to permit easy passing behind the chairs when persons are seated around the table.

The *walls* should be finished in light colors rather than dark, which tend to make the room appear gloomy. The window curtains should be of a kind easily laundered, since draperies in a dining room are apt to hold dirt and odors and need frequent cleaning.

The *floor* is best made of hard wood, as a rug may then be used instead of a carpet. A dining-room floor would be more sanitary if no covering were used, but the noise made by using a bare floor is annoying to many persons.

The *furniture* should be plain in design. Wood or cane-seated chairs are perhaps better to use than upholstered, because they are easier to keep clean. A *dining-table* with a top having a waxed finish is much better than one highly varnished. The top of the *sideboard* and *serving-table* should not be crowded with dishes of various kinds. A dining room is more pleasing with few pictures, or none at all, and with little bric-a-brac or few dishes used as decoration.

When buying a *"set" of dishes* it is best to select a style with simple decoration or without decoration. Large conspicuous designs and bright colors become tiresome when the dishes are used often. A good quality of china with no decoration is a wise choice for a "set", because any type of decorated dish looks well with it.

Silver knives and forks should be of the same pattern, but the spoons may be of different design. Silver never looks well unless it is kept polished.

White *linen tablecloths* and *napkins* are better to buy than cotton, because linen wears longer and launders much better than cotton. *Luncheon sets* of various types may be used instead of a tablecloth, and are much easier to launder.

HOME PROBLEMS AND QUESTIONS

Collect pictures of dining-room furniture; of the interior of dining rooms. Bring them to class for discussion. Perhaps, if there is a furniture dealer in the community, you or the teacher can get furniture catalogues that will be good to study.

Which types of chairs are best for the dining room? Why? Do the chairs in the pictures seem too heavy to move about easily? Are they well braced? Observe whether they would be hard to dust.

What types of tables are best for the dining room? Why?

Which type of sideboard is best?

For what purpose is a side-table used? What is a buffet?

See if you can find samples of the kind of curtain material you think would be good for a dining room.

If your teacher has a sample-book of wall paper, find a sample of the colors you would like to have on the walls of your dining room.

What kind of floor-covering would you like?

You may like to mount on sheets of paper pictures of the furniture you would select to use in your dining room; if you have a sample of curtain material, rug and wall paper that you like, you can mount these. Then make a floor-plan of your room, showing the size of the room, the windows, the doors, and where the china closet is placed. Arrange the furniture in the room. On another sheet make a list of the prices of all the furnishings in the dining room. What is the total cost of furnishing? Tie these sheets together and make a cover for them.

LABORATORY EXERCISES

MEAT DISHES FOR BREAKFAST

BROILED BACON

Place in a hot frying-pan thin slices of bacon from which the rind has been removed. Turn several times during the cooking. When the bacon is crisp, not burned, drain from the fat carefully and serve on a warmed platter.

Bacon may be purchased by the piece, sliced in bulk, or sliced and packed in sealed containers. In which form is bacon the cheapest by the pound? Why?

CREAMED DRIED BEEF

Place two tablespoons of fat in a small frying-pan; when it is melted, add about three slices of dried beef torn in pieces. Stir about three minutes, add one cup of milk. Mix thoroughly one tablespoon of flour with two tablespoons of milk; add slowly to the scalding hot milk. Stir to prevent lumping. Cook slowly five to ten minutes. Serve on toast arranged on a warmed platter.

In making this white sauce, why is the flour mixed with milk instead of with fat?

How is dried beef made? Perhaps the butcher will tell you. What does it cost per pound?

What are some other meat dishes that would be good for breakfast? If you have time, try one of these.

TABLE MANNERS

No matter how educated or pleasing in character one may be, the impression made upon others is not good if one's manners are poor.

Certain *rules* for table behavior or manners have been adopted because they make the eating of the meal easier and more graceful, and the serving of it more convenient.

The following are a few rules that should be observed always when at the dining-table:

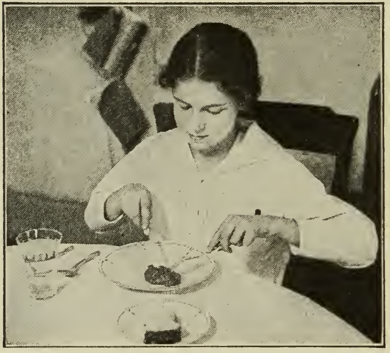
1. Never go to the table unless hands and face are clean and the hair is in order.

2. Stand behind your chair until the hostess takes her seat.

3. The napkin should be laid across the lap without being entirely opened out. Never stick the

corner inside the collar. If the napkin is to be used again, fold it neatly before leaving the table.

4. The knife should be held in the right hand and the fork in the left when they are used at the same time. Hold the knife and fork so that the end of the handle touches the palm of the hand. The point of the index-finger is on the top of the handle of the fork at the lower end, but not on the tines. The knife must be laid on the plate when not in use. Both knife and fork should be placed side by side on the plate when one has finished using them at the end of a course. The fork, when being used to carry food to the mouth, may be held in either hand, and may be held in much the same position as when used with the knife, or like a spoon.



Proper Way to Hold Knife and Fork

5. The spoon should be held in the right hand, and such food as soup, tea, or coffee should be taken from the side of the spoon. A spoon used for stirring tea or coffee should be laid on the saucer after use and before drinking from the cup.

6. Always sit erect in the chair while eating. Keep the arms and elbows off the table.

7. Never eat hurriedly.

8. Do not talk when the mouth is full of food.

9. Ask politely for dishes to be passed, rather than reach across the table.

10. Never complain about the food. If it is not the kind desired, it need not be eaten.

11. If it is necessary to leave the table before the others are ready, ask to be excused by the hostess.

12. Do not talk about disagreeable things during the meal.

HOME PROBLEMS AND QUESTIONS

The following breakfast will be served during the next laboratory period:

Orange
Oatmeal
Toast
Cocoa

Make a list of the dishes and silver that will be needed in setting the table and serving the meal.

Decide how much of each food will be required for serving the number who are to eat the meal.

Decide the order of work for preparation of the meal, — that is, which food must be put on to cook first, which second, etc.

What will the food cost for each person?

LABORATORY EXERCISES

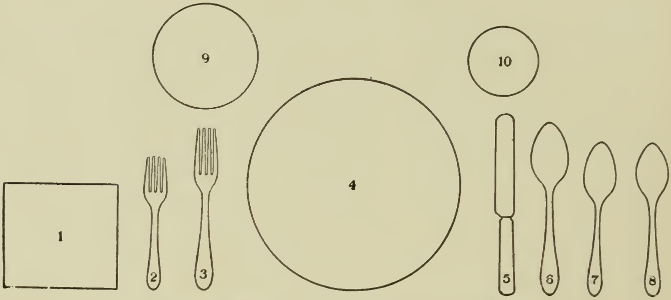
SERVE A BREAKFAST

Setting the table: Place the *table-pad* or *silence-cloth* on the table. Over this lay the cloth, arranged straight and smooth. If a center doily is used, place this in the middle of the table. Doilies and table-runners may be used, instead of a tablecloth, for breakfast, luncheon and supper. Asbestos pads should be placed under all hot dishes when doilies or runners are used on a polished table.

A *cover* means the space with the silver, glass and china allowed for each person. Enough space must be allowed so that no one is crowded. Twenty-two inches is the least space that should be used.

At the center of each cover place a plate, the kind depending on the meal that is served. For breakfast it will probably be the fruit-plate. At the right of the plate place the knife, with its sharp edge toward the plate and the end of the handle about one inch from the edge of the table. Next to the knife place the spoons, with the bowls up.

At the left of the plate, place the fork or forks with the tines up and the end of the handle about one inch from the edge of the table. To the left of the fork lay the neatly folded napkin.



ARRANGEMENT OF "COVER" FOR DINNER

1, Napkin; 2, Salad Fork; 3, Dinner Fork; 4, Dinner Plate; 5, Dinner Knife; 6, Soup Spoon; 7, Dessert or Sauce Spoon; 8, Coffee Spoon; 9, Butter Plate; 10, Water Glass.

At the end of the knife, place the glass, right side up. At the end of the forks, place the bread-and-butter plate.

When flowers are used they should be low, or not high enough to obstruct the view across the table.

The dishes from which foods are to be served should be placed conveniently for those doing the serving. Place the serving-spoons and the carving-knife and fork where they will be needed, but do not place them in the dishes before beginning the serving.

Cups and saucers, sugar-bowl and cream-pitcher, should be placed in front of the hostess, with the coffee-pot or teapot at her right.

The table should never look crowded with dishes. When the hostess is serving the meal, a tea-cart at her side may be used for holding dessert-dish, bread-plate, water-pitcher, etc.

Place the chairs so that the edge of the seat just touches the tablecloth, but does not keep it from hanging straight.

STYLE OF SERVING

There are three methods of serving meals:

1. *English,* used in ordinary family service. Foods are served at the table by the host and hostess and other members of the family. The served dishes may be passed by the household helper, or passed from one person to another at the table. The hostess usually serves the soup, salad and dessert; the host serves the meat and vegetables. This is the style of serving used in most American homes.

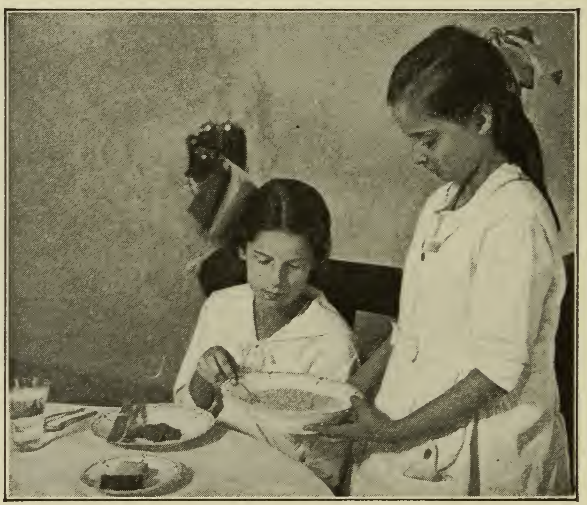
2. *Russian,* used for very formal meals. Each plate is served in the kitchen and placed in front of the guest by the household helpers; or the empty plates are placed before each guest and the serving-dishes are passed to each person by the household helper. No serving-dishes are placed on the table. This form of service is not practical for the ordinary family, because it requires more work than the English service.

3. *Combination,* used for informal meals. This is a combination of the two other styles. For example, the soup or salad is served in the kitchen, and the meat and vegetables are served at the table.

Every hostess may follow her own ideas about serving, as far as details are concerned, but a few general rules should be followed.

1. Serving-dishes from which the guest is to serve himself must be passed to the left of the guest. Why?

2. Plates that have been served are placed in front of the guest from the right side. Why?



Serving-dish Passed to the Left

3. Used plates are removed from the right side when it is possible to do it conveniently.

4. When removing dishes between the courses, use the following order: remove the used dishes, then the dishes containing food, next the clean dishes and silver that will not be needed further, then the crumbs from the cloth (if necessary). A table never looks attractive when dirty dishes from

one course remain during the next course, and even at the most informal meals it is better to remove dishes between courses. This work may be done by the daughter. When the family is very small, sometimes the dirty dishes are placed on a side-table or tea-cart, from which the dessert is taken, thereby saving the housekeeper steps in serving.

5. In removing dishes from the table, when serving an informal meal, they may be placed on a hand-tray for carrying to the kitchen. Never "stack" dishes at the table or for removing from the table.

Set the table for breakfast. Practice serving.

If no dining-room furniture is available, the supply-table may be used. Perhaps dishes to use in setting the table may be borrowed until the school can get such equipment. If no other way is possible, let every member of the class arrange a cover at the laboratory desk, using laboratory dishes. This is never a desirable plan, however, because the equipment does not supply the best type of dishes nor the proper kind.

LABORATORY EXERCISES

SERVE A BREAKFAST

Suggested Menu: Orange Toast
Oatmeal Cocoa

Discuss order of work.
Discuss equipment needed.
Discuss china and silver needed.
Would this type of breakfast suit every family? Why?
Review recipes.
Cook and serve meal.

Several lessons might be given on serving breakfasts.

THE PLAN FOR SUPPER OR LUNCHEON

In some families the meal served at noon is called luncheon and is followed by dinner in the evening; in others, dinner is the meal served at noon, followed by supper in the evening. *Luncheon* and *supper* are simpler meals than dinner.

The plan varies greatly under different conditions, but the usual types of food served are meat or meat-substitute dishes, salads, vegetables, bread in some form and perhaps a simple dessert or cake. "Quick breads" are often used for luncheon or supper.

Many consider a cream soup, a vegetable salad, bread, stewed fruit and cookies a good combination for such a meal, while other families prefer a meat dish, a hot vegetable, and bread; still others may consider bread and milk a satisfactory menu. No family needs, in one meal, foods of all the types suggested.

Luncheon or supper is a meal for which it is convenient to use the "*left-overs*" in various ways. Bits of meat may be combined with other foods to make attractive dishes. Small portions of vegetables may be made into salads or soups, or combined with meat. Sometimes a salad is made of left-over fruit, and used at the end of the meal in place of a dessert.

Some housekeepers are very wasteful in throwing into the garbage-can small bits of clean food that may be left from a meal. Often persons object to "left-overs", but this is usually the case when the housekeeper has not learned how to make them into dishes which are well flavored and pleasing in appearance.

When bits of meat are left from a meal they should be put in a covered container and placed in the icebox or some other cool place. Vegetables with a strong flavor should be covered if put in the icebox. All "left-over" food should be used promptly and not left to spoil.

The cost of food should be considered, and if anything can be saved by careful watching and planning it is a part of the housekeeper's business to do this.

There are several ways of reducing the amount of money to be spent for food: (1) buy the foods that are in season; (2) buy those which contain the greatest food value, these are not always the highest priced; (3) buy in quantity any foods that can be properly stored; (4) prepare and cook carefully, so that nothing shall be wasted; (5) save every part of the food that is fit for use.

LABORATORY EXERCISES

CREAM SOUPS

CREAM OF TOMATO SOUP

Make one cup of No. 1 White Sauce. Strain cooked tomatoes through a wire sieve, using one half cup of juice. Place tomato-juice in saucepan, heat, add one sixteenth teaspoon soda. Add the heated tomato-juice to the white sauce. Re-heat and serve in warmed soup-plates.

Try mixing one tablespoon tomato-juice and one tablespoon of milk, and see what happens. The soda prevents this action, which is the curdling of the milk.

CREAM OF CORN SOUP

½ c. stewed or canned corn
1 c. milk
1 tsp. flour
1 tbsp. butter

Make a white sauce of the milk, butter and flour. Less flour is needed for thickening, because the corn will help thicken the soup.

Heat the corn and press through the vegetable-ricer. Add corn to the white sauce. Re-heat. If desired, a spoonful of whipped cream may be placed in each soup-plate and the soup poured over it.

TO SERVE WITH SOUPS

Soup-sticks. Butter slices of bread. Cut into strips. Brown them slowly in the oven.

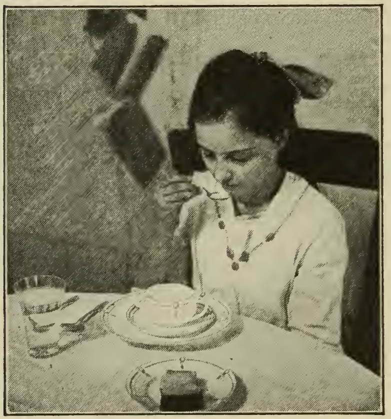
Croûtons. Cut buttered slices of bread into cubes. Brown in oven.

Wafers. Heat salted wafers in oven until crisp.

Parsley. Chopped parsley is sometimes sprinkled over the top of cream soups as a garnish.

Celery. Crisp celery is always good to serve with soups.

If possible, bring from home other recipes for cream soups.



Correct Method of Holding Soup or Bouillon Spoon

REVIEW QUESTIONS

1. What are the foods usually served for luncheon or supper? Should all of these be served in the same meal?

2. What are "left-overs"? How may they be used?

3. How should "left-overs" be cared for?

4. Why do some persons object to "left-overs"?

5. How may the housekeeper reduce the amount of money spent for food?

6. Name some foods that are "out of season" at the present time. Why are they expensive?

7. State ways in which food is wasted in cooking.

8. When should soda be added to tomato soup? Why?

9. Are cream soups of much food value? Why?

10. Name some foods that should not be served when cream soups are used in the meal plan. Explain.

11. Make several supper or luncheon plans.

MEAT SUBSTITUTES

Such foods as cheese, milk, poultry, nuts, dried peas, beans, lentils, cowpeas and soy beans are sometimes used in the diet in the place of meat, and are commonly called *meat substitutes*.

In the United States, people eat more meat per person than in any other country, and more than is necessary. This is because the flavor of meat is very much liked, because meat is easily cooked, and because it is popularly believed to be necessary for the best muscular work. It has been found, however, that meat may be replaced, for a part of the time at least, by other foods that contain a large amount of protein, without injury to the body and without loss in muscular strength. If meat is high in price it is well to remember this fact when planning meals.

Cheese is a product made from milk. When divided into its parts by the chemist, cheese is found to contain about one third water, one third fat and one third protein. Cheese is usually divided into two classes: (1) hard cheese, such as American Cheddar cheese, Edam and Roquefort, and (2) soft cheese, such as Neufchâtel, Camembert and cottage cheese.

The cheese most commonly found in the market is American Cheddar cheese, sometimes called "American cheese" or "New York cream cheese." The States making the most cheese are New York and Wisconsin. Much of our cheese comes from foreign countries, as for example, Edam cheese from Holland, and Neufchâtel from France.

Cottage cheese is often made at home when there is an extra supply of milk; or skim milk may be used.

American cheese is usually purchased by the pound. A large family may find, however, that purchasing a whole cheese is a better plan, as the cost will be less. Cheese that is to be kept for several days after it has been cut should be placed on a plate and left uncovered in a dry clean place, or it may be covered with a cloth.

Some persons consider cheese hard to digest, and this may be so when it is eaten too hurriedly, or eaten after a meal at which enough food has already been eaten. When ground or grated cheese is combined with other foods, it is well digested by most persons.

LABORATORY EXERCISES

CHEESE

If there are several kinds of cheese sold in the local market it would be interesting to have a sample of each type in the laboratory for examination. Observe the texture and flavor. What is the price of each kind?

CHEESE SOUFFLÉ

½ c. No. 4 White Sauce	3 eggs
¼ c. grated cheese	Few grains cayenne

Add the cheese and cayenne to the hot white sauce. Beat the yolks of the eggs until they are thick and lemon colored; pour slowly over these the white sauce. Mix carefully. Let stand until cool. Beat the whites of the eggs very stiff. When white-sauce mixture is cool, fold in the stiffly beaten egg-whites. Turn into a buttered baking-dish, set the dish in a pan of warm water and bake in a moderate oven until firm. Serve at once. The baking-dish may be placed in a holder made for the purpose, or it may be wrapped with a napkin before being placed on the table.

CHEESE STRATA

In the bottom of a buttered baking-dish place thin slices of bread, over this pour hot No. 3 White Sauce, on this a layer of grated cheese, then layers of bread, of white sauce, and more cheese, until the dish is filled. Cover the top with buttered bread crumbs. Bake in a slow oven about thirty minutes. Serve in baking-dish.

WELSH RAREBIT

¼ lb. grated cheese
¼ c. cream or milk
½ tsp. mustard
½ tsp. salt
1 egg
2 tsp. butter
Few grains cayenne
Toast

Place the cheese, mixed with the cream or milk, in top part of double-boiler and heat until the cheese is melted. Then add the beaten egg, to which the mustard, salt and cayenne have been added; then add the butter. Cook until it thickens, stirring constantly. Pour over toast. Welsh rarebit is often made in the chafing-dish.

BREAD CRUMBS

All crusts and pieces of bread should be saved for bread crumbs. Dry them in a slow oven. Put through a food-grinder, or crush by placing on a bread-board and using a rolling-pin. Store the crumbs in open jars, never in tightly closed containers. If the crumbs are to be kept for several weeks or months, a cloth should be tied over the top of the container.

Buttered bread crumbs, to be used on the top of escalloped dishes, are prepared as follows:

1 c. bread crumbs
2 tbsp. butter
Salt and pepper, if desired

Melt the butter in a frying-pan. Add the crumbs with which the seasonings have been mixed. Stir until the butter is thoroughly mixed with the crumbs.

Other cheese dishes may be made if desired.

The class may be divided into groups and each group make one recipe, the others copying the recipe. When family-size recipes are used, perhaps some of the products may be sold, either to individuals or in the lunch-room if there is one.

REVIEW QUESTIONS

1. Name the meat substitutes.
2. Why are they called meat substitutes?
3. From what is cheese made?
4. What does the chemist find that cheese contains?
5. Into what two classes is cheese divided?
6. Name some examples of each class.
7. Which is the most commonly used cheese?
8. How is cottage cheese made?
9. Find out, if you can, how American Cheddar cheese is made.
10. How is cheese kept in the grocery?
11. What is the price per pound of American Cheddar cheese?
12. How should cheese be kept in the home?
13. Make a luncheon or supper plan in which each of the cheese dishes made in the laboratory might be served.

MEAT SUBSTITUTES (*Continued*)

NUTS

Nuts in general contain a large amount of fat and protein and may sometimes be substituted for meat in the diet. They may be used in their natural form, or they may be ground and combined with other foods.

Peanuts are often used for making "peanut butter", which is a very valuable food.

English walnuts, *almonds* and *peanuts* are the varieties of nuts most used. These are cultivated nuts, grown in the Southern States and California. *Black walnuts*, *hazel nuts*, *hickory nuts*, *pecans* and *chestnuts* grow wild in some parts of the United States.

Nuts should not be eaten at the end of a meal when one has already taken the food needed. Nuts may be hard to digest when eaten at this time, or when they are not chewed thoroughly.

DRIED LEGUMES

Peas, beans, lentils, soy beans and *cowpeas* belong to the class of vegetable foods called legumes. They contain a large amount of protein, fat, carbohydrate and mineral matter.

Dried beans, peas and lentils are foods used especially in winter. When serving them it is not necessary to use meat at the same meal. Cowpeas and soy beans, while not so common, are used in the same way as beans, peas and lentils.

Legumes may be baked, boiled or combined in some way with other foods. Dried legumes require long periods for cooking. A fireless cooker is very useful when cooking legumes, or the pressure-cooker can be used and the time required much shortened.

Dried legumes must be *thoroughly cooked* to make them good for food, since the cellulose in them is tough. They are often soaked in water for several hours before cooking.

Dried legumes are usually purchased by the pound. Buying in quantity makes the cost less.

LABORATORY EXERCISES

DRIED LEGUMES

Examine samples of beans, dried peas, split peas, lentils, soy beans and cowpeas. Compare the price by the pound. Which of these may be purchased at groceries in the neighborhood? Try the seed-store for cowpeas and soy beans.

BAKED BEANS

1 qt. white beans	1 tsp. mustard
1 tsp. soda	½ c. molasses
¼ lb. salt pork	Salt, if needed
1 small onion, if desired	

Cayenne, if desired

Pick over, wash and soak beans in cold water overnight. Pour off any water remaining. Put in kettle, cover with water, add soda and boil gently until the beans are slightly softened. This boiling is sometimes called "parboiling." Drain again. Put the beans into the bean-pot. Cut the pork into slices, but do not remove from the rind; press down into the beans with rind up. Place sliced onion on top. Mix the molasses, mustard, salt and cayenne with one pint of boiling water and pour over beans. If liquid does not show on the surface, add more boiling water. Cover pot. Bake in slow oven six to eight hours. Uncover during the last hour, so that the beans will brown on top. A fireless cooker or oven may be used for baking beans.

A Bean-pot Used for Baking Beans

NUT AND CHEESE LOAF

1 c. cottage cheese	¼ tsp. pepper
1 c. nut meats	1 tsp. salt
1 c. bread crumbs	2 tbsp. chopped onion
Juice of ½ lemon	1 tbsp. fat

¼ c. water or meat stock

Grind the nuts; mix the cheese, nuts, salt, pepper, crumbs and lemon juice. Cook the onion with the fat and water, or with the meat stock, until it is tender; add to other ingredients. Mix thoroughly. Pour into greased baking-dish. Bake about twenty minutes. Serve with tomato sauce.

TOMATO SAUCE

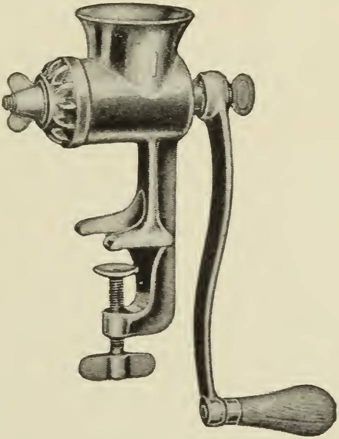
1 c. tomato-juice
2 tbsp. flour
1 tbsp. fat
1 slice onion
Salt and pepper

Boil the onion in the tomato-juice for three minutes. Remove the onion. Continue as for any white sauce.

PEA SANDWICHES

¼ c. pea pulp
1 tbsp. chopped nuts
1 tbsp. grated cheese
Lemon juice

Press canned peas through the vegetable-ricer. Measure the pulp, add the cheese, chopped nuts and enough lemon juice to make the right consistency for sandwich filling. Spread between thin slices of bread.



FOOD-GRINDER

Used for grinding meat, vegetables, nuts, cheese, bread and other foods.

Plan a meal in which such sandwiches would be suitable to serve.

REVIEW QUESTIONS

1. What foodstuffs are found in large amounts in nuts?
2. Which are the nuts commonly used in this locality?
3. What is the price per pound of peanuts? English walnuts?
4. Is it more expensive to buy them shelled?
5. How many pounds of peanuts in the shell does it take to make one pound of shelled nuts?
6. How is peanut butter made?
7. What are the commonly used dried legumes?

8. What foodstuffs do they contain?
9. Why are they called meat substitutes?
10. Why are dried legumes soaked in water?
11. How should dried legumes be cooked?

SALADS

Salads may be made from vegetables, fruits, or meats; or they may be a combination of vegetables and fruits, or of meats and vegetables to which has been added some kind of dressing and perhaps small amounts of other materials to give flavor.

Salad dressings are of three types: mayonnaise, French and cooked dressing, and each type may be varied, making many kinds.

Lettuce is used in the making of many salads, often only as a "garnish" which is used to make a dish more attractive. Lettuce always should be clean, crisp and cold when used for a salad. *Celery tops, endive, nasturtium leaves, water cress* and other garnishes are sometimes used for salad.

Salad oil is one of the materials used in some dressings. Salad oil may be made from olives, when it is called *olive oil;* or it may be made from corn or cottonseed, when it is usually sold by a trade name. When buying salad oil one should examine the label on the can or bottle, to see whether the oil is made from olives or other material, since oil made from corn or cottonseed should not be sold at so high a price as olive oil.

Eggs often form a part of the salad dressing and, when they are combined with the oil and used on the salad, add to its value as a food. Whipped cream also adds to the food value of a salad.

When *meat salads* are served for luncheon or supper, no other meat dish is needed. *Vegetable salads*, when made of the legumes, can be used as a meat substitute. *Fruit salads* can be substituted for dessert in many meals.

Besides being used as a part of a meal, salads are often served with sandwiches as "refreshments."

An *attractive salad* should have the following qualities: freshness, crispness and coolness; it should have an appetizing flavor, and should combine well with the other food served in the meal.

LABORATORY EXERCISES

SALADS, SALAD DRESSINGS

Use a corn oil, a cottonseed oil and olive oil in making the following dressings. The class may be divided into groups for the work. Compare the price of the three kinds of oil. Compare the taste of the dressings.

Lettuce should be washed, dried on a cloth, and be thoroughly crisp before it is used with salads.

FRENCH DRESSING

1 tbsp. sugar
2 tbsp. vinegar
4 tbsp. oil
¼ tsp. paprika
⅛ tsp. salt
⅛ tsp. white pepper
1 tsp. scraped onion, or onion juice

To the dry ingredients add the onion and the vinegar; stir thoroughly, add the oil, beat until of a thick creamy consistency. French dressing may be made in quantity and kept for several days in a cold place. Beat thoroughly every time it is used.

MAYONNAISE DRESSING

1 egg-yolk
¼ tsp. salt
⅛ tsp. paprika
½ tsp. sugar
½ tsp. mustard
½ c. oil
1½ tbsp. vinegar or lemon juice

The oil should be cold. Beat the egg-yolk with the Dover egg-beater until it is thick and lemon-colored; add dry ingredients. When the mixture is well blended, add a little of the oil; beat, add more oil; beat again. When the mixture is thick, add a little of the lemon juice or vinegar; beat. Then add more oil and vinegar or lemon juice, beating constantly. Sometimes, in making this dressing, the mixture separates or curdles and does not become thick. When this happens, beat another egg-yolk until it is thick, and add the salad dressing slowly to the egg, beating constantly. Keep in a cold place.

COOKED DRESSING

1 egg	½ tsp. salt
¼ c. vinegar	1 tbsp. sugar
½ c. milk	1½ tbsp. flour
¼ tsp. mustard	1 tbsp. butter

Paprika if desired

Make a white sauce from the flour, butter and milk; add the seasonings. Beat the egg until it is thick and lemon-colored. Gradually pour white sauce into the beaten egg, stirring well. Place in double-boiler and cook five to ten minutes. Add the vinegar slowly. If there are lumps, strain through a wire sieve. Cool.

THREE SALADS

Asparagus tips, potato and head lettuce.

If the dressing is thicker than desired, it may be thinned with a little cream or milk when it is to be used. For some salads, whipped cream may be added to the dressing.

SALMON SALAD

½ c. salmon 1 small chopped sweet pickle
1 tbsp. chopped celery or shredded cabbage
Mayonnaise dressing

Drain oil from salmon, remove all pieces of bone and skin. Add the celery or cabbage and the pickle. Mix carefully with a fork. Add dressing. Place on a bed of shredded lettuce. Garnish with hard-cooked egg if desired.

BANANA SALAD

Peel and scrape a banana. Slice lengthwise and once crosswise. Arrange on lettuce. Use cooked dressing to which whipped cream has been added. Chopped nuts may be sprinkled over the top.

VEGETABLE SALAD

Cooked and fresh vegetables make good salads with the addition of French or cooked dressing. The following combinations are suggested:

Diced carrots, peas and chopped peanuts.
Green beans, chopped onion and parsley.
Potato, cucumber and green pepper.
Lima beans, carrots and peas.
Tomato; stuffed with cabbage, celery or cucumber.

REVIEW QUESTIONS

1. Name the types of salad dressings.
2. What kinds of oils may be used in making dressings?
3. Which is most expensive?
4. What is the use of a "garnish"? What are some materials used for garnishing?
5. When should meat salads be served? Prepare a plan for a luncheon or supper in which it is proper to serve salmon salad.
6. What kind of vegetable salad can be substituted for meat in the meal? Why? Prepare a plan for a meal in which "Lima bean, carrot and pea" salad is suitable.
7. Plan a luncheon or supper in which a fruit salad is suitable.

8. What are the characteristics of a good salad?
9. What may be served with salads?
10. Bring to class a good recipe for cheese crackers and one for cheese straws.
11. How should wafers be crisped when served with salads?
12. What is "head lettuce"? "leaf lettuce"? What is the price of lettuce?

LABORATORY EXERCISES

SERVE A LUNCHEON OR SUPPER

Suggested Menu: Cream of Corn Soup
Cabbage Salad
Bread and Butter
Baked Apple with Cream

Make other menus for supper or luncheon.

DRIED FRUITS

Drying is one way of preserving fruits. Many housekeepers on farms dry apples and other fruits at home, but a very much larger amount is dried by commercial firms. Many thousand tons of peaches, apricots, prunes and raisins are dried in California every year and shipped to all parts of the United States and to many other countries. Some of our dried fruits, such as dates, figs and raisins, come from foreign countries.

Prunes are a kind of plum that have been dried. *Raisins* are dried grapes. *Dates* are the fruit of the date palm. *Figs* come from the fig tree.

Apricots, *peaches* and *prunes* are usually purchased by the pound, and when packed in bulk should be carefully washed before using. They are often packed several pounds in a box, and if the whole box is purchased are cheaper in price.

Raisins, figs and dates of the best grade are sold in carefully wrapped packages. They can also be purchased by the pound. "*Seeded*" raisins are sold by the box, but it is well to look them over carefully to remove any seeds that may have been left.

Dried fruits, before *cooking*, should be washed carefully and then soaked in cold water overnight. The soaking shortens the time required for cooking and develops the flavor. They should be cooked in the water in which they have been soaked. A fireless cooker is useful in cooking dried fruits because they require long cooking.

Dried fruits are used in place of fresh fruits or canned fruit, and when well cooked make a good dessert for luncheon and supper, or served as the fruit dish for breakfast.

LABORATORY EXERCISES

DRIED FRUITS

Experiments: 1. Wash one half pound each of dried peaches, prunes and apricots; to each add one pint of water. Soak overnight. Drain off and save any remaining water. How much does each fruit weigh? Explain what has happened.

2. Place the prunes in a closely covered kettle, add liquid in which they were soaked. Set kettle inside of large kettle of fireless cooker, fill cooker kettle half full of hot water. Cover cooker kettle. Place on hot radiator in cooker. Cook about three hours. Do not open the cooker during this period. Remove prunes from cooker, add one half cup of sugar and boil for ten minutes over direct heat. Serve cold.

3. Place apricots in a saucepan, add liquid in which they were soaked, cover saucepan. Place over fire

and simmer gently until fruit is tender. Hot water may be added if necessary. Add one half cup sugar, and heat until sugar is melted. Serve cold.

4. If there is a steam cooker in the laboratory, cook the peaches in this. Follow the same directions as for Experiment 2, except that the small kettle can be set directly on the shelf of the steam cooker.

5. Compare the fruit cooked in the different ways, as to appearance. Which is the most economical way of cooking?

PRUNE WHIP

1 egg-white
1 c. prune pulp
1 tbsp. lemon juice

Remove the seeds from the cooked prunes, rub prunes through a wire sieve, add lemon juice. Heat pulp. Beat egg-white very stiff. Add prune pulp gradually, folding it into the egg-white. Pile on serving-dish. Chill and serve as dessert.

DATE PUDDING

¾ c. sugar
2 eggs
¼ c. flour
1 c. chopped English walnut meats
1 tsp. baking powder
1 c. dates, seeded and chopped into small pieces
⅛ tsp. salt

Beat the eggs slightly, add the sugar, beat until creamy. Mix dates, nuts, baking powder, flour and salt, and add to first mixture. Mix and turn into a greased baking-dish. Bake in moderate oven twenty to thirty minutes, or until the pudding just becomes firm. Serve hot or cold with whipped cream.

REVIEW QUESTIONS

1. Name the dried fruits you have seen.
2. What fruits are often dried at home?
3. What methods are used in drying fruits at home? Farmers' Bulletin No. 841, "Drying Fruits and Vegetables in the Home",

from Division of Publications, U. S. Dept. of Agriculture, Washington, D. C., will tell you how fruits are dried.

4. What fruit are prunes? raisins?
5. From which countries do we obtain dates, figs and raisins?
6. What is the price per pound of apricots, prunes and dried peaches?
7. In what kinds of packages may dates, figs and raisins be purchased?
8. What is the price of the ordinary package of dates? of figs? Read the label on the package to find weight of contents.
9. Give general directions for cooking dried fruits.
10. Plan a luncheon or supper in which date pudding might be used correctly as the dessert.

QUICK BREADS

All breads are *divided* into two classes, (1) quick breads and (2) yeast breads. Quick breads are made in a shorter time than is required for making yeast breads, and are generally served hot.

A *quick bread* requires the following ingredients: flour, a liquid, salt and a leavening agent. To these may be added some other ingredients, not necessary but often desired, such as shortening, sweetening, flavoring and eggs.

White, whole wheat and Graham flours, and corn meal, are generally used in the making of quick breads. Other flours that can be used are corn, rice, rye, buckwheat, barley and potato flours. *Corn meal* is used more extensively in the South than elsewhere in the United States. Since corn is a cereal it is a very valuable food; therefore corn meal and other corn products should be used in greater quantities than they are in most families. There are two kinds of corn meal, (1) yellow, made from yellow corn, and (2) white, made from white corn. The flavor differs slightly.

The material added to any bread to make it "light" is called a *leavening agent.* The leavening agents commonly used are air, steam, baking powder, soda and yeast; all except the last are the ones used in quick breads.

Air is added by beating eggs very light and folding them into the flour mixture, or by rapidly beating the flour mixture itself. The air expands when heated, causing the mixture to rise.

When the heat in the oven turns the water which is in the flour mixture into steam, further heat causes the steam to expand, and this causes the flour mixture to stretch, thus making it "rise." Popovers are a kind of quick bread made to rise with air and steam.

Baking powder is a compound made of baking soda, an acid substance and a starchy material. The acid substance used varies with different baking powders. Some of the good baking powders are made by combining cream of tartar (the acid substance), baking soda and starch. Whenever baking soda is put with an acid and moisture is added, carbon dioxide gas is formed. This is what happens when baking powder is put in a flour mixture, — the baking powder supplying the acid and soda, while the moisture is supplied by the flour mixture. When heat is applied, this gas expands the flour mixture and causes it to rise.

Baking powder is used when sweet milk or water is the liquid used in the flour mixture.

It is never wise to buy cheap baking powder, for it is often poorly made and does not produce good results.

Baking soda is used with sour milk or buttermilk. The sour milk and buttermilk contain the acid needed to combine with the soda to form the carbon dioxide gas. Soda is often used when molasses is needed in the recipe, because some kinds of molasses contain a good deal of acid; but much molasses that is now sold is not very acid, and soda must be used with it carefully. Baking soda is difficult to use correctly with milk in cookery because the amount of acid present in the milk varies.

HOME PROBLEMS AND QUESTIONS

Make a list of the brands of baking powder that you have seen advertised or used. In what kind of container is baking powder sold? Why?

What is the difference in price per pound when baking powder is bought in a one pound container, one half pound and one fourth pound?

Is corn meal sold by the pound or in the package?

Which is the more commonly used in this locality, white or yellow corn meal? Why?

Make a list of firms making flour which you have seen advertised. Is there a flour mill in the neighborhood? If so, perhaps the teacher can arrange to go through the flour mill with the girls. In that case, write down all the processes through which the wheat goes in becoming flour.

LABORATORY EXERCISES

QUICK BREADS

In all recipes sift the flour before measuring.

BAKING-POWDER BISCUITS

½ c. milk
1 c. flour
2 tsp. baking powder
1 tbsp. fat
½ tsp. salt

Add the salt and baking powder to the flour; sift again. Cut the fat into the flour, using two knives. Add the liquid and mix quickly. Place on floured board, roll one half to three fourths inch in thickness, cut with biscuit-cutter, place in baking-pan. Have oven hot when biscuits are put in. Bake fifteen minutes.

MUFFINS

2 c. flour
4 tsp. baking powder
¼ tsp. salt
2 tbsp. sugar
1 c. milk
2 tbsp. melted butter
1 egg

Sift flour, baking powder, salt and sugar together. Beat egg slightly, add milk. Stir the flour mixture into the liquid, add the melted butter. Place in greased muffin tins. Have oven moderately warm when muffins are put in. Bake about twenty minutes.

SOUTHERN SPOON CORN BREAD

2 c. white corn meal
2½ c. boiling water
1½ tbsp. melted fat
2 eggs
1½ c. buttermilk
1 tsp. soda
1½ tsp. salt

Add corn meal gradually to boiling water and let stand until cool. Beat egg yolks slightly; add salt, buttermilk and soda; mix immediately with corn meal. Beat two minutes, add the stiffly beaten egg-whites. Put in buttered baking-dish. Bake in a moderate oven forty-five minutes.

CAKE

Cake, well made and well baked, is not harmful if eaten slowly and not in too great quantity.

Children should not be allowed to eat large amounts of cake because it contains a good deal of sugar, and although sugar is a good food, yet when too much is eaten it may irritate the stomach and cause trouble in digestion. Then too, cake, like "new" bread, is so soft and tender that it is a temptation to swallow it without proper chewing. When too much cake is eaten it spoils the appetite for other more useful foods, such as milk and vegetables.

Cookies are best for little children because they are drier and require more chewing. Cake should be eaten at mealtime and not as a "piece" between meals.

All cakes may be placed in *two classes:* (1) those made without fat, such as sponge cake, and (2) those made with fat, such as plain butter cakes. A plain cake recipe may be varied in a great many ways, thereby affording different kinds of cake. Some of the materials that may be added to change the taste and appearance are spices, flavoring extracts, fruits, nuts and chocolate. *Butter* has been considered the only fat suitable to use in making cake, but with butter high in price many have used other fats and found them very good. Some of these are oleomargarine, corn oil, cottonseed oil and other vegetable fats.

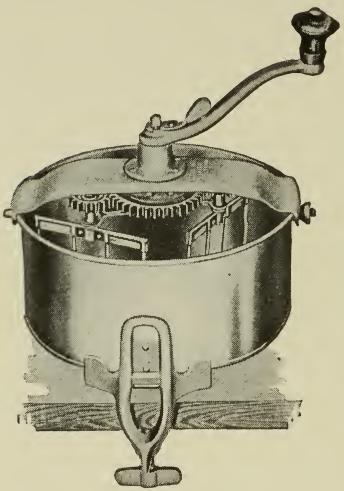
Pastry flour is often used in cake-making and makes a tenderer cake than many bread flours. A bread flour made from soft wheat is better for use in cake than one made from hard wheat.

When too much *sugar* is used, it makes the cake more crumbly and the crust sticky and tough. Honey or syrup sometimes may be used in a cake in place of sugar.

Baking powder, *soda*, *eggs* and *air* are the leavening agents used in cakes.

Loaf and layer cakes are flour mixtures called *thick batters*, while cookies are called *stiff doughs*. A *batter* is a flour mixture that is stirred with a spoon. A *dough* is a mixture stiff enough to be kneaded and rolled.

Cakes and cookies should be kept in tight metal containers so that they will not dry out, and so that they will not absorb moisture from the air.



CAKE-MIXER

LABORATORY EXERCISES

CAKE-MAKING

Cakes made with fat: The following method is generally used in making cakes with fat:

1. Measure all ingredients.
2. Grease the cake-pans.
3. Cream the fat by rubbing and beating with a wooden spoon.
4. Add sugar gradually, beating the mixture until it is of a creamy consistency.

5. Beat yolk of eggs until it is thick and lemon-colored. Add to butter and sugar.
6. Add the baking powder to part of the flour.
7. Add the rest of the flour and milk alternately to the egg and sugar mixture.
8. Add vanilla and baking powder.
9. Beat egg-whites very stiff and fold into mixture.
10. Half fill greased pans. Bake.
11. Fruit or nuts should be mixed with a little of the flour and added just before the egg-whites.

STANDARD CAKE

¼ c. butter
1 c. sugar
2 eggs
½ c. milk
1½ c. flour
2½ tsp. baking powder
½ tsp. vanilla

This cake recipe may be varied by adding one cup chopped nuts; or 1 tablespoon spice; or two ounces melted chocolate; or one half cup currants.

Cakes made without fat. The following is the method used in making cakes without fat:

1. Sift flour and sugar several times before measuring.
2. Beat yolks of eggs until the mass is thick and lemon-colored.
3. Add sugar gradually, beating with Dover egg-beater.
4. Add lemon juice or other flavoring.
5. Beat egg-whites until very stiff.
6. Partially fold egg-white into sugar and egg mixture.
7. Remove egg-beater; use spatula, and fold in flour and salt very carefully.
8. Bake in a tube cake-pan, unbuttered.
9. Bake forty to sixty minutes in a slow oven.
10. Do not open oven door for first twenty minutes.

11. After removing cake from oven, invert pan on cake-rack, but do not remove cake until cold.

SPONGE CAKE

6 eggs
1 c. sugar
1 tbsp. lemon juice
Grated rind of ½ lemon
1 c. flour
¼ tsp. salt

BOILED FROSTING

1 c. sugar
1 tsp. flavoring
½ c. water
1 egg-white

Mix sugar with water and boil until it " spins a thread " (232° F. on the thermometer). Beat egg-white stiff; over this pour the syrup slowly, beating all the time until it first begins to stiffen. Add flavoring and spread over cooled cake.

REVIEW QUESTIONS

1. What is a "leavening agent"?
2. Name the leavening agents used in quick breads; in cakes; in yeast bread.
3. What leavening agent is used with sweet milk? with sour milk? with molasses?
4. Explain the action of baking powder in a flour mixture.
5. Explain the action of soda in a flour mixture.
6. What is the leavening agent used in sponge cake? Explain the action.
7. Into what two classes may cakes be divided? Give examples under each class.
8. Give the proportions of ingredients used in a standard cake.
9. How may this be varied?
10. Give the general rules for making a cake with butter; without butter.
11. Give directions and proportions for baking-powder biscuits.
12. What kind of flour may be used in cakes?
13. Define the terms "dough" and "batter."
14. When and how should cake be eaten?
15. Why are cookies best for little children?

THE SCHOOL LUNCH

Many children must carry their lunch to school unless the school has a lunch-room where lunch may be purchased. It is very important that the lunch be of the right kind for the child, that it be packed in a way to keep it in good condition, and that it be eaten in an orderly way at the school.

First let us consider what foods are good to use in the school lunch. *Sandwiches* are important and should be made from well made, thinly sliced bread, with butter or with a good filling. Eggs, meat, dates, figs, peanut butter, lettuce, nuts and cheese are some of the foods that are good for fillings, and there are many ways of combining them.

Milk is excellent to include in any lunch, and when one wishes to vary the taste it may be combined with other materials and made into custards, blanc mange, cocoa, or soups. Soups or cocoa can be carried to school in a thermos bottle, and something hot on a cold day is very good.

Rice may be prepared in many ways for the school lunch. *Cookies,* simple *little cakes,* or *sweet crackers* are always good. *Fruit,* raw or cooked, should be used often.

Tin buckets or tin boxes keep the lunch in the best condition. *Lunch-boxes* with a thermos bottle slipped in the top may be purchased, but they are expensive.

Pasteboard boxes are not good because they cannot be thoroughly cleaned. Newspapers should not be used for wrapping lunches ; if paper must be used, choose clean wrapping-paper.

Oiled or *waxed paper* should be used for separately wrapping sandwiches, cakes and other foods to go in the lunch. This paper can be purchased at little cost and keeps the food in better condition. *Covered glasses* should be used for custards and similar foods. *Paper napkins,* to be used as a cover for the desk or table, and for wiping the fingers, should be in every lunch. Each child should have a *drinking-cup* and whatever silver is needed for eating the lunch. In *packing* the lunch, place the articles in the box in such a manner that they will jar as little as possible.

Lunch-box

With a thermos bottle, oiled paper, drinking-cup, paper napkins and covered glass.

In some schools the girls in the cooking class prepare a hot dish for luncheon at noon; in other places the mothers send from home a hot soup, cocoa, or stew in a fireless cooker.

Before eating the lunch, the hands and face should be washed. Every child should have his or her own soap and towel to use. The lunch should be *eaten* *slowly,* either at the desk or at the table provided for that purpose, and the very best table manners should be practiced. After finishing the lunch, pupils should put the room in good order.

LABORATORY EXERCISES

THE SCHOOL LUNCH

SANDWICHES

Breads good to use for sandwiches are white yeast bread, whole wheat bread, brown bread, nut bread and raisin bread. The butter used should be creamed by stirring and beating with a spoon until it is creamy instead of solid. A spatula is best to use for spreading butter on the bread. The slices of bread coming together in the loaf should be put together in the sandwich so that they " fit."

Sandwiches for the lunch may be varied in three ways:

(1) by using different kinds of bread,
(2) by using different kinds of filling,
(3) by cutting the bread into different shapes.

The following are some good sandwich fillings. Perhaps some of the members of the class can suggest others.

1. Date paste, made of chopped dates and a little water, cooked together until a paste is formed. Lemon juice and chopped nuts may be added.
2. Jelly, jam, or marmalade.
3. Cottage cheese with pimento or nuts.
4. Lettuce with salad dressing.
5. Hard-cooked eggs, put through vegetable-ricer and seasoned. Minced ham or salad dressing may be added.
6. " Left-over " meat, chopped and seasoned, or mixed with salad dressing.
7. Cooked dried beans, put through a colander and mixed with cream, or salad dressing and chopped pickle.
8. Pea pulp with grated cheese and nuts.

NUT BREAD

1 c. brown flour
1 c. white flour
1 c. sweet milk
½ c. sugar
½ c. chopped nut meats
2 tsp. baking powder
½ tsp. salt
½ egg

Mix a little of the flour with the nuts; mix a little with the baking powder. Beat the egg, add the sugar and salt. Add the sweet milk and flour alternately; then the nuts and baking powder. Pour into greased bread-pan. Let rise twenty minutes. Bake one hour in a moderate oven.

Busy Cooks in a Rural School
Perhaps they are preparing the noon lunch.

DATE CAKES

1 lb. dates
1 c. brown sugar
1 c. water
1 c. fat
2½ c. rolled oats
2½ c. flour
1 c. granulated sugar
¼ tsp. salt

Wash, seed and chop dates; add brown sugar and one half the water; cook until a paste is formed. Cream fat and granulated sugar together. Add the salt. Add remainder of water, flour and rolled oats, alternately. Place a little of the mixture on the bread-board, roll very thin. Over the top of half the dough spread some of the date paste; fold the other half of the dough over this; press together gently. Cut with sharp knife into rectangular pieces, any size desired. Place on baking-sheets and bake in a moderate oven twenty to thirty minutes. Never try to roll more than a small portion of the dough at a time, because it is difficult to fold over a large amount.

BAKED CUSTARD

1 pt. milk
2 tbsp. sugar
⅛ tsp. salt
2 eggs
½ tsp. vanilla

Scald the milk, sugar and salt together. Beat the eggs slightly, pour the scalded milk over them gradually; add vanilla, stir well. Pour into cups or ramekins. Set in pan of warm water; bake in a moderate oven until a knife thrust through the middle of the custard will come out clean.

Directions. Obtain several good containers and other equipment necessary for packing lunches. Divide the class into groups, and have each group prepare foods suitable to use in the school lunch.

Pack the following lunches:

(1) Nut-bread and butter sandwiches (two)
Lettuce sandwich
One orange
Date cookies (two)

(2) Milk
Egg sandwiches (two)
Jelly sandwich
Baked apple

(3) Bread and butter sandwiches (two), cut in triangular shape
Nut-bread and butter sandwich
Custard
Dates, raisins, or figs

Plan some lunches in which cocoa, or soup, or meat stew is served at school and the rest of the lunch is brought in the lunch-box.

REVIEW QUESTIONS

1. What kind of lunch-boxes should be used? Why?
2. Name the other equipment needed for packing a lunch well.
3. What is the price of oiled paper? Where can it be obtained in this locality?
4. How should the school lunch be served?
5. What rules should be followed when eating the lunch?
6. How should good sandwiches be made?
7. Should the daughter in the house help prepare the lunch for school?
8. What foods should be prepared in sufficient quantity for several lunches, to be used on different days?

LABORATORY EXERCISES

SERVE A LUNCHEON OR SUPPER

Suggested Menu: Cheese strata
Lettuce sandwiches
Dried peaches
Sponge cake

Estimate the cost of the meal.

Serve several luncheons or suppers, if there is time in the course.

If possible, serve a buffet supper, inviting the mothers as guests.

THE DINNER PLAN

Dinner, in most homes, is the "heaviest" meal served during the day because it consists usually of a greater variety of food than do the other two.

The *home dinner* may be planned in one of three ways: (1) Meat, with one or two vegetables; bread and butter with jam, jelly, or preserves; dessert. (2) Meat, with one or two vegetables; salad; bread and butter with jam, jelly, or preserves; dessert. (3) Soup; meat, with one or two vegetables; bread and butter with jam, jelly, or preserves; salad; dessert. A very simple meal is a *one-dish* meal; that is, a combination dish, consisting of both meat and vegetables, served with bread and butter, and perhaps a sweet or dessert of some kind.

The plan which is best to use for dinner depends upon several things: (1) what kind of meals have already been eaten during the day, (2) what amount of money can be spent for food and (3) what amount of time should be spent in getting the meal.

When meals are planned, they should be arranged for the whole day at least. If a very light breakfast and a simple luncheon or supper are to be served, it is necessary to have a heavier dinner than when a good deal of heavy food (food containing much food value) is served for breakfast, luncheon, or supper. Then, too, the kinds of food served in any one meal must be considered when the others are planned, because variety is necessary in the diet. Foods used often should be varied by preparing them in different ways; for example, potatoes should not be served mashed every day for dinner, but should be served in other ways on different days.

It is not necessary to have soup at the beginning of a dinner, nor is it necessary always to have a *dessert* at the end. The housewife should not serve a heavy dessert, such as a pie or rich pudding at the end of a meal in which a meat, vegetables and a salad have been served. It is better to serve a dessert of fruit, or plain gelatine pudding, at the end of such a meal.

Too many *vegetables* should not be served at dinner; the general rule of serving two is a good one to follow. Lettuce is usually served with any salad and would make the third. In choosing the two, it is better to select one starchy and one green vegetable, the two being pleasing in taste when eaten together. When a vegetable salad is served, it can take the place of one of the cooked vegetables.

Only one kind of *meat* should be served. A meat or fish salad should not be served when another meat dish is being used. Eggs are not needed when meat is served, nor should meat be served with baked beans.

The same vegetable should not be served twice in the same meal; for example, do not serve potatoes in a hot dish and also in a salad, nor rice as a vegetable and in a rice pudding, nor tomato salad and tomato sauce for the meat. Do not serve more than one kind of "sweet" at a meal.

When a housekeeper must do everything herself, without help, she should consider the length of *time* needed in the preparation of a meal. Some dishes require a much longer time in their preparation than it is right for the housekeeper to spend when there are others more easily prepared that are quite as good. No person should spend too large a share of her time in cooking, as there are other things as important to be done. It is necessary to prepare enough food and to have it well cooked, but "fancy" cookery takes too much time when the housekeeper does all of the household work in her home.

It is wise to think about the amount of *fuel* used in getting a meal if other than a coal or wood range is used. Sometimes it is economical to plan a meal with all the main dishes baked in the oven, or cooked in the steam cooker, or in the fireless cooker, instead of cooking one dish in the oven and one or two on top of the stove.

DEEP-FAT KETTLE, WITH FRYING-BASKET

To plan, cook and serve a good dinner is a difficult piece of work, and any girl deserves praise when she can do this at home without her mother's help.

LABORATORY EXERCISES

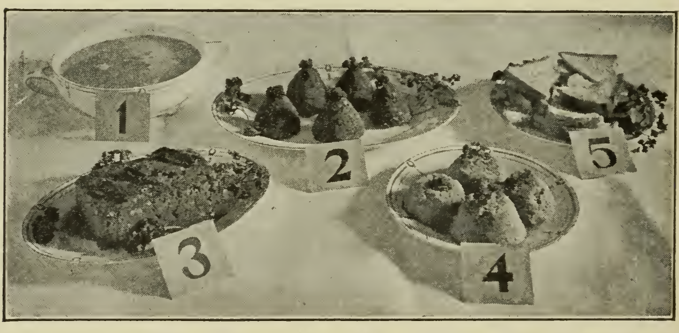
LEFT-OVER DISHES

Experiments: 1. Place the kettle of fat over the fire and heat until it begins to " foam " on the surface. Place a cube of bread in the fat. After one minute remove the bread; break it apart. Has the bread absorbed the fat?

2. Continue heating the fat until blue smoke rises from the surface. Place another cube of bread in the fat. After one minute remove the bread; break it apart. Has the fat been absorbed as in the bread used in No. 1? Which temperature would be best to use in frying croquettes? Can you explain why? Would you want the fat as hot for frying doughnuts? Why?

CROQUETTES

Croquettes may be made of left-over meat, vegetables, or cereals, alone or combined, and may be mixed with thick gravies, No. 4 White Sauce, or egg. The croquettes should be mixed, the hot sauce added, and then allowed to cool. Be careful to add only enough sauce or eggs to bind together the ingredients.



No. 2, Croquettes. No. 3, Meat Loaf. No. 5, Pea Sandwiches

When the mixture is cold, form the croquettes into the desired shape, either ball, pyramid, or roll. Beat an egg slightly, add two tablespoons of water, and mix thoroughly. Use bread crumbs that are very fine. Roll the croquette in the egg, then in the crumbs, then in egg, and then in crumbs. Place croquettes in frying-basket and lower the basket carefully into the hot fat. Fry until brown. Remove croquettes and place on crumpled brown paper to drain. Be careful not to pierce or break the crust on the croquette, either while it is in the fat or when removing it from the fat.

The following are some combinations used in croquettes:

SALMON CROQUETTES

⅓ c. No. 4 White Sauce
⅔ c. canned salmon, flaked
Lemon juice, paprika and salt to taste

POTATO CROQUETTES

1 pt. mashed potatoes
2 tbsp. butter
¼ tsp. salt
1 tsp. chopped parsley
1 egg yolk or ½ egg
Onion juice if desired

BEEF AND RICE CROQUETTES

1 c. finely chopped beef
⅓ c. cooked rice
⅛ tsp. pepper
Tomato sauce or left-over gravy

SCALLOPED HAM AND EGGS

2 hard-cooked eggs
¼ c. chopped ham
1 c. No. 2 White Sauce
Buttered bread crumbs

In the bottom of a buttered baking-dish, or ramekin, place a layer of crumbs, then a layer of white sauce, then a layer of the eggs sliced, then white sauce, then ham, then crumbs; continue until the dish is filled. Finish with a layer of crumbs. Bake in a moderate oven until crumbs are browned and ingredients thoroughly heated through.

REVIEW QUESTIONS

1. What is the material used for binding together the ingredients in each of the croquette recipes?
2. What would be the result if too much white sauce were added to the croquette mixture?
3. What are other recipes for using left-overs?
4. Give three general plans for dinner.
5. What points must be considered when planning a dinner?

6. Should meals be planned singly or for the day? Why?

7. Give the general rules to follow in planning the vegetables for dinner.

8. What are some reasons for not serving more than one meat for dinner?

9. What should not be served at a dinner where meat is used?

10. Should the same food be served twice in one meal? Give examples.

11. In what way may fuel be saved in getting a dinner?

12. Plan some dinners that would be economical as to price and time, and that would be pleasing in taste and appearance.

VEGETABLES

The term *vegetable* includes a large class of foods which are used in great quantities in our diet. Vegetables of many kinds can now be had at all seasons of the year because the canned and dried vegetables, like the fresh ones, can be shipped successfully from one part of the country to another. In large city markets a great variety of fresh vegetables can be bought, even in midwinter. Hothouse and imported vegetables are expensive and in many cases not of good flavor. *Lettuce* is now used by many households at all seasons of the year; it is usually good when carefully selected, and it satisfies the desire for something green during the winter.

Vegetables are important in the diet because they furnish a large share of the mineral matter needed by the body. They supply carbohydrates, in the form of starch and sugar, and also supply bulk in the diet.

There are several *classifications* given for vegetables; perhaps the best one to use is that which divides them into green and starchy vegetables.

The *green vegetables* are sometimes called watery or succulent vegetables. They contain very little starch, but are valuable as food for their mineral matter, and for the cellulose and the vitamines they supply. They are useful because they furnish variety in our meals. Such vegetables as lettuce, cabbage, Brussels sprouts, celery, cucumbers, radishes, onions and tomatoes are green vegetables.

Green vegetables are of two kinds, (1) those with a mild flavor, such as celery and squash, and (2) those with a strong flavor, such as cabbage and onions.

All vegetables lose food value when boiled in a large quantity of water, because mineral matter and other soluble materials are dissolved out of them.

Steaming is a better way of cooking vegetables, if all the food value is to be retained. Mild-flavored vegetables taste well when steamed, or when boiled in just enough water to keep them from burning. The strong-flavored vegetables are of better flavor when cooked in a quantity of water, and this method is most common, even though the food value is lessened.

The *starchy vegetables* are such vegetables as potatoes, corn, sweet potatoes and parsnips; also the legumes which have already been studied.

Baking is an excellent method for cooking vegetables which taste well when prepared in that way. Boiling vegetables, such as the potato, with the skin on, prevents the loss of food value.

Vegetables are *cooked* for several reasons: (1) to soften the cellulose, (2) to change or improve the flavor, (3) to make the starch easier to digest, (4) to vary the way of serving them.

Vegetables are often cooked for too long a time

This spoils the flavor and perhaps the appearance, in addition to causing a loss of food value. They should be cooked until tender and not allowed to stand after they are done. Cabbage is a vegetable usually cooked for too long a period, in which case it becomes strong in flavor, tough and very different in appearance.

When vegetables are *purchased*, the fresh crisp ones should be selected. Withered vegetables are not good in flavor and are often poor in texture. Many vegetables, such as corn, green peas and string beans, retain their good flavor but a very short time after being gathered. If withered vegetables must be used, they may be improved by long soaking in cold water before cooking.

When selecting vegetables, the following points will be helpful:

Green beans should be crisp, and the pod should snap easily.

Green peas should have a green pod, the seed tender when pressed with the finger nail, and the pods well filled.

Green corn should have a fresh green husk, brown silk, the ears well filled, and the grain tender and full of juice when pressed with the finger nail.

Young carrots or fresh beets should be firm and have tops that are green and fresh.

A head of lettuce should be solid when pressed, and not have a number of outer leaves that must be thrown away. Leaf lettuce should be fresh and of a light green color, without old and coarse leaves.

Celery should be crisp, tops not wilted, and outer stalks neither woody nor brown in color.

A head of cabbage should be solid and with few leaves that cannot be used.

Radishes should be firm, tops not wilted.

Tomatoes should be thoroughly ripe, smooth and without spots that, when removed, will spoil the shape of the tomato.

Many vegetables are now sold by the pound, and it is economy to buy those which will require little waste in preparation.

HOME PROBLEMS AND QUESTIONS

Make a list of all the vegetables you know.

Divide the list into the following groups:

1. Those that may be baked.
2. Those that may be creamed.
3. Those that may be scalloped.

Can any of the vegetables be put in more than one class?

Make a list of the green vegetables, and one of the starchy vegetables commonly used. Use Bulletin No. 28, "The Composition of American Food Materials", obtained from Bureau of Chemistry, Department of Agriculture, Washington, D. C., to find to which class they belong.

What is the price by the pound of the following: onions, carrots, turnips, parsnips, potatoes, sweet potatoes?

What is the price by the can of peas, tomatoes and corn? Does the price vary with the different brands? Can you give reasons why this might be? Read the label on a can of vegetables. What is stated on the label? Why should one read the label?

Bring to class one or two good recipes for preparing vegetables which have not been used in class. Let every member of the class copy the recipes in the class notebook if they are approved.

LABORATORY EXERCISES

VEGETABLES

BAKED SQUASH

Wash the outside of a Hubbard squash. Cut into pieces about three inches square, or into any shape desired. Remove the seeds. Sprinkle the inside of each piece with a little salt, pepper and sugar. Place on shallow pan and bake in oven until squash is tender and slightly browned on top.

SCALLOPED CORN

1 can corn
1 pt. milk
½ tsp. salt
⅛ tsp. pepper
1 tbsp. butter
2 eggs
1 tbsp. sugar
Buttered bread crumbs
Chopped green peppers, if desired

Beat the eggs slightly, add milk, sugar, salt and pepper: mix thoroughly. Add the corn. Pour the mixture into a buttered baking-dish, add the butter and cover top with bread crumbs. Set in a pan of water. Bake about forty-five minutes in a moderate oven.

Would less time be required if this were baked in ramekins? Why?

CARROTS AND PEAS

Wash and scrape a carrot. Cut into dice, place in boiling salted water; boil gently until the carrot is easily pierced with a fork. Do not cover the saucepan, and use as little water as possible. When the carrot is done, drain it from the water; add it to an equal quantity of drained canned or fresh peas which are hot. Pour melted butter over them; sprinkle with pepper. Serve in a warm vegetable-dish.

Instead of serving them in this manner, after combining the two vegetables, add half as much of No. 2 White Sauce as there is of vegetables. Re-heat and serve in bread boxes. *Bread boxes* are made by taking a piece of bread about three inches square and two inches high and hollowing it out to make a box. Then butter outside of box, place on pan, and toast in oven. Use while warm.

These bread boxes are used simply to vary the manner of serving a food. Creamed oysters, creamed meats and other creamed vegetables are also served in bread boxes.

How may the bread which you removed from the center of the box be used?

CREAMED ONIONS

Peel an onion, wash and place in boiling salted water to cook. Do not cover pan. The onion is done when it can be pierced easily with a fork. Drain onion and add No. 2 White Sauce. Re-heat. Serve in a warmed dish.

THE POTATO

Potatoes are used as food in greater amount than any other vegetable. If all the potatoes grown, minus those used in other ways than human food, were equally divided among the people of the world, it would give every person about four bushels a year.

The potato is a native of America and probably was first found in Chile. It was first grown in Europe in or about 1585. In Ireland the potato is one of the chief foods of the people, and for that reason the white potato is called the *Irish potato*.

The botanist calls the potato a tuber, that is, an underground stem which has thickened and become a storehouse for food to be used by the new plants.

When the chemist examines the potato, he finds that it *contains* a large amount of starch, a little protein, some mineral matter and a large per cent of water. The potato is particularly valuable for its starch, and is therefore mainly a heat and energy-producing food.

The method used in *cooking* potatoes has much to do with the food value. Baking or boiling "in their jackets" saves the food value. Peeling and then boiling causes some loss of the mineral matter and protein, since these foodstuffs are found just under the skin of the potato and may be lost when it is pared, unless very thin peelings are removed.

Potatoes, to be cooked, should be put in boiling water, not in cold, as soaking peeled potatoes in cold water draws out the starch and also causes a loss of protein and mineral matter. Potatoes should never soak in cold water after they are peeled, if all of the food value is to be saved. If they are old and withered, they should be freshened by soaking before the skin is removed. Potatoes should be removed from the boiling water as soon as they are done. *Baked* potatoes, when done, should have the skin broken or pierced with a fork to allow the escape of the steam, which would cause the potato to be soggy.

New potatoes are those sold immediately after they are harvested. *Old potatoes* are those that have been stored before being put on the market. In the spring old potatoes may *sprout*, which indicates that a new plant is beginning to grow from the "eye" of the potato. This hurts the quality of the potato for cooking. Potatoes that have been *frozen* are sweet, poor in flavor, and not mealy.

When *buying* potatoes, choose those of fairly uniform size, having smooth skins and free from scab. Potatoes are sold by the measure or by weight, the latter custom being much more common than formerly.

Sweet potatoes are very much like Irish potatoes in food value, except that they contain sugar which gives them their sweet taste. Sweet potatoes are grown and used more in the South than in the Northern States.

LABORATORY EXERCISES

POTATOES

BAKED STUFFED POTATOES

Scrub with a brush, in cold water, a medium-sized, well shaped potato. Cut off a strip of peel one half inch wide around the middle of the potato. Place the potato on a rack in a hot oven. A medium-sized potato needs to bake about forty-five minutes. Test by piercing with a fork or pressing firmly between the fingers; it should feel soft if done.

Cut the potato into halves at the peeled strip, remove the inside carefully from the shells, mash, add salt, butter and cream, or milk, using about one teaspoon butter and one tablespoon milk for each potato. Beat well. Refill the shell with the mashed potato; do not press down, but fill lightly. Place on pan and set in a hot oven to brown the top slightly.

CANDIED SWEET POTATO

Scrub sweet potatoes and place in boiling water, cook until partly done, peel and place in a shallow baking-dish. Make a syrup by boiling together equal parts of sugar and water; pour this over the potatoes, sprinkle with salt and bits of butter. Bake in a hot oven until the potatoes are done and slightly brown.

FRENCH FRIED POTATOES

Wash and peel small potatoes, cut in eighths lengthwise; soak thirty minutes in cold water to make very crisp. Take from water and dry between towels. Fry in a frying-basket in deep fat. Drain on brown paper and sprinkle with salt.

Test the fat with a small cube of bread. If bread browns in one minute, the fat is the right temperature for frying potatoes.

Should the fat be as hot as when frying the croquettes made in a previous lesson? Why?

REVIEW QUESTIONS

1. Why are vegetables important in the diet?
2. Into what two groups may vegetables be divided? Name examples of each.
3. How should highly flavored vegetables be cooked?
4. Why are vegetables cooked?
5. How should mild-flavored vegetables be cooked?
6. Give the points to be observed in selecting the following: head lettuce, leaf lettuce, celery, cabbage, tomatoes, green corn and green peas.
7. What foodstuffs are found in a potato?
8. Should peeled potatoes be soaked? Why?
9. In cooking potatoes which are the best methods to use? Why?
10. How may baked potatoes be kept from becoming soggy?
11. What are "new potatoes"? "old potatoes"?
12. How do sweet potatoes differ from Irish potatoes?
13. Is "French fried" an economical way of preparing potatoes? Why?

OTHER STARCHY FOODS

RICE

Rice is a food sometimes used in a meal in place of potatoes. Rice and potatoes should not be used in the same meal because both are starchy foods, of like appearance, and without much flavor. If a rice pudding is to be served as dessert, then green vegetables are best to use in the main course of the meal.

Most of the rice used in the United States comes from the Southern States, where the growing of rice is becoming a much more important industry than formerly.

Rice is sold in the market in two forms, (1) *polished*, and (2) *unpolished or brown rice.* In preparing rice for the market, the outer husk of the seed is removed. The rice then appears brownish in color and is called brown or unpolished rice. To remove this brown coating, the grains are polished. It is then sold as "polished rice" and is white in color. The brownish coating on the rice contains mineral matter and vitamines. When it is removed valuable food material is lost. The brown rice has a good flavor but does not sell so well as the polished rice because of its appearance. It is cheaper than the polished rice. When buying the "best" rice, one should see that the grains are uniform in size and unbroken.

MACARONI, SPAGHETTI, VERMICELLI

Macaroni is a product made by mixing flour with water to form a stiff dough which is then forced through metallic plates that have small round perforations with the center of the hole filled, thus making long hollow tubes of dough. When the dough tubes have been dried in ovens they are packed for market. Macaroni is sold in packages that contain pieces cut the length of the package, packed closely side by side, or pieces cut about two or three inches long.

Spaghetti is another form in which this paste is sold, but for this the tubes are made smaller than for macaroni. Vermicelli is still another form of this paste, sometimes rolled and cut in fancy shapes, such as the alphabet.

Macaroni and spaghetti are served as a substitute for starchy vegetables, and when either is used, such foods as potatoes, rice, corn, or beans should be omitted from the meal. Vermicelli is used in soups.

Any of these products need highly seasoned foods, such as tomatoes or cheese, either cooked or served with them. To taste best, they require fat added.

HOMINY

Hominy is a product made from corn by removing the hard outside layers of the kernel. It may be sold in this form, or the grains may be broken into small pieces, when it is called *grits,* — or the pieces may be steamed and rolled, when it is known as *flaked hominy.* Hominy is a starchy food often used in a meal in place of potatoes, and is very good when well cooked.

CORNSTARCH

Cornstarch is also a product made from corn, and is used as a thickening agent. It is a fine white powder and is sold in packages.

TAPIOCA

Tapioca is a product made from the root of the cassava plant which grows in South America. It is almost pure starch, and is prepared from the root by grating, washing and separating the starch, after which it is dried on metal plates. Tapioca is sold in two forms, (1) *pearl tapioca,* which is usually soaked several hours before cooking, and (2) granulated or *minute tapioca,* which need not be soaked. Tapioca is used mainly in making puddings.

LABORATORY EXERCISES

STARCHY FOODS

Experiments: 1. Starch turns to a blue color whenever tincture of iodine is added to it. Place a drop of iodine on each of the following: a slice of potato, rice, tapioca, cream of wheat, flour, sugar, egg, meat. Which contains starch?

2. Place one half teaspoon of cornstarch in two tablespoons of cold water in a glass or test tube. Mix together well. Has the liquid changed in appearance? Let this stand for fifteen minutes. What has happened? Is the starch dissolved in the cold water?

3. Try the same experiment, using sugar instead of starch. Is the result the same? Why?

4. Pour one half cup boiling water directly on one tablespoon cornstarch, stir, boil one minute. Is the mixture smooth? Examine the inside of a lump. Is it like the uncooked starch?

5. Mix one half teaspoon cornstarch with two tablespoons cold water. Heat slowly, boil one minute. Is the mixture smooth? Can you explain why?

6. Try the same experiment, mixing the cornstarch with an equal amount of sugar, then add boiling water. What is the result?

7. Try mixing one tablespoon cornstarch with one half teaspoon fat and stirring into boiling water. What is the result?

The results would have been the same if you had used flour instead of cornstarch. The starch grains must be thoroughly separated before cooking, so that each starch grain may cook thoroughly. From these experiments determine the best method for making blanc mange.

BLANC MANGE

2 c. milk	2 tsp. vanilla
$\frac{1}{4}$ c. cornstarch	$\frac{1}{8}$ tsp. salt
$\frac{1}{4}$ c. sugar	Nutmeg

The pudding should be cooked thirty minutes in a double-boiler. Pour into a mold that has been wet with cold water. When cold and "set", remove from mold and serve with fruit juice, or maple syrup, or cream.

MACARONI AND CHEESE

Break macaroni into short pieces. Rinse and add to boiling salted water. Use about one fourth cup of macaroni with one pint of boiling water and one half teaspoon salt. Boil gently until macaroni is tender. Drain off water, pour cold water over macaroni and drain at once; this prevents the pieces sticking together.

In the bottom of a buttered baking-dish place a layer of well seasoned No. 2 White Sauce made with milk, then a layer of macaroni, then a layer of grated cheese, then one of white sauce, — continuing until the dish is almost filled. Place a layer of buttered bread crumbs on top. Bake slowly thirty to forty minutes.

RICE AS A VEGETABLE

3 c. water	1 c. rice	1 tsp. salt

Place rice in wire strainer and wash by running water through the rice. Place water in top part of a double-boiler over direct heat and bring to boiling-point; add the rice and salt. Place over boiling water and cook until the rice is tender. Serve.

Rice may be cooked in a steamer if desired. It is also cooked in boiling water over direct heat, using eight cups of water to one cup of rice. Why is more water needed? Which method would be best to use when all the food value is to be retained?

REVIEW QUESTIONS

1. What do you know about the growing of rice?
2. In what forms is rice sold? Which has the most food value? Which is better in appearance?
3. What is the price of polished rice per pound? of unpolished rice?
4. How is macaroni made? What nation eats a great deal of macaroni?
5. What is spaghetti? vermicelli?
6. How is hominy made?
7. What are hominy grits? hominy flakes?
8. What food may hominy replace in a meal?
9. In what kind of package is cornstarch usually sold? What is the price?
10. What is tapioca?
11. In what two forms may tapioca be purchased?
12. Which is the easier to use?

MEAT

The flesh of animals is called meat. The principal kinds used in the United States are beef, veal, mutton, lamb and pork.

The slaughtering and packing of meat is one of the most important industries in the United States and is one that is governed by many federal and State laws. These are necessary, because meat used as food must be clean and free from harmful bacteria, as well as from parasites, which are tiny living creatures in the flesh of unhealthy animals.

Clean meat is that from animals free from disease, slaughtered under sanitary conditions, and kept in a cold place away from flies, dust and other dirt until sold to the housekeeper. The large packing firms have their plants well equipped to carry on this work according to law. Some of the small slaughterhouses used by butchers are not clean and are not good places for handling meat.

The meat market or shop must be kept clean, and the men handling the meat must wear clean clothes and have clean hands if the meat is to be kept in good condition. As soon as fresh meat comes from the market the paper wrapping should be removed and the meat put in a cool place, away from flies and dust.

In order to thoroughly understand what cooking does to meat, one must understand its *structure*. Meat is composed of muscle fibers held together by connective tissue. Each fiber is composed of bundles of tiny tubes filled with muscle juice composed of water in which are protein, mineral matter, coloring matter and extractives. The extractives give the flavor to meat. In between the muscles, and surrounding the tubes, are the particles or globules of fat.

When meat is *cooked* the connective tissue is softened, the flavor is improved and changes take place in the muscle juice. Meat is either tender or tough, depending upon the age of the animal and the part of the carcass from which it comes. The *tough portions* come from the much exercised sections of the animal's body. The tough cuts usually have more flavor, contain as much food value, and when well cooked are as pleasant to the taste as the *tender cuts*. The tough cuts cost less than the tender because there are fewer tender cuts in the animal carcass.

Tender cuts of meat can be cooked successfully in dry heat by (1) broiling, (2) pan-broiling and (3) roasting. The tough cuts are best when cooked in moist heat by (1) stewing, (2) braising and (3) pot-roasting.

When selecting meat at the market it is important to know the names of the several cuts and also the part of the animal carcass from which the cuts are taken, in order to decide which method is best to use in cooking them.

LABORATORY EXERCISES

MEATS — TENDER CUTS

Experiments: 1. Take a small piece of tough lean meat and scrape with the dull edge of the knife, scraping both sides until nothing remains but the stringy mass or framework of the meat. Of what is this framework made?

2. Place the stringy mass in a frying-pan and heat for a few minutes. What is the result?

3. Pour a little water in the frying-pan, cover pan and simmer slowly for twenty minutes. What effect has the moist heat had on the stringy mass?

What would be the best methods to use in cooking tough meats? Why?

4. Place one cube of meat in a small amount of cold water and let boil three minutes. Place another cube of meat in a small amount of boiling water and boil three minutes. Examine the liquid on both. Do they differ? Why? Which method would you use for making soup? Which when the meat itself is to be used? Why?

PAN-BROILED STEAK

Wipe steak with a damp cloth. Have frying-pan very hot. Rub a little fat over the bottom of the frying-pan. Place the steak in the frying-pan, sear on one side, then on the other; turn very often and cook until done according to taste. Place on warmed platter, sprinkle with salt and pepper, and with bits of butter if desired.

A steak for broiling should be at least one inch thick. To cook a steak of this thickness to a medium degree requires about fifteen minutes.

Lamb chops, mutton chops, or pork chops may be broiled in the same way.

A broiler may be used instead of the frying-pan if there is one available.

ROAST OF BEEF

Wipe the roast with a damp cloth. Place in a roasting-pan in a very hot oven. Roast ten minutes, or until the meat is seared. Dredge the roast with salt, pepper and a little flour. Reduce heat in the oven and continue roasting until done according to taste; about fifteen or twenty minutes must be allowed for each pound to cook to a medium degree. A little water may be added which may be used for basting the meat. A large roast is always more juicy than a small one, — four or five pounds is as small a roast as should be used to obtain good results.

Meat may be roasted in the fireless cooker, if desired.

CASSEROLE OF BEEF

2 c. left-over cooked beef
1 c. gravy
¼ c. celery cut in small pieces
¼ c. carrot cut in small cubes
1 c. potato cubes
½ c. canned tomatoes
½ onion, thinly sliced
¼ tsp. salt
$\frac{1}{16}$ tsp. pepper

Mix together and place in a casserole; cover. Bake slowly one hour. Serve from casserole.

REVIEW QUESTIONS

1. What are the principal kinds of meat used in the United States?
2. Why must meat be kept clean?
3. What is clean meat?
4. Describe the structure of meat.
5. What are the foodstuffs found in meat?
6. What is the chief value of meat as food?
7. What changes take place in meat when it is cooked?
8. What makes meat tough?
9. From what parts of the animal are the tough cuts obtained?
10. How may tender cuts be cooked? How should tough cuts be cooked?
11. Make a plan for dinner in which casserole cf beef might be correctly served; roast beef; broiled steak.
12. What other meats might be used in place of the beef in the casserole of beef?

MEAT (*Continued*)

BEEF

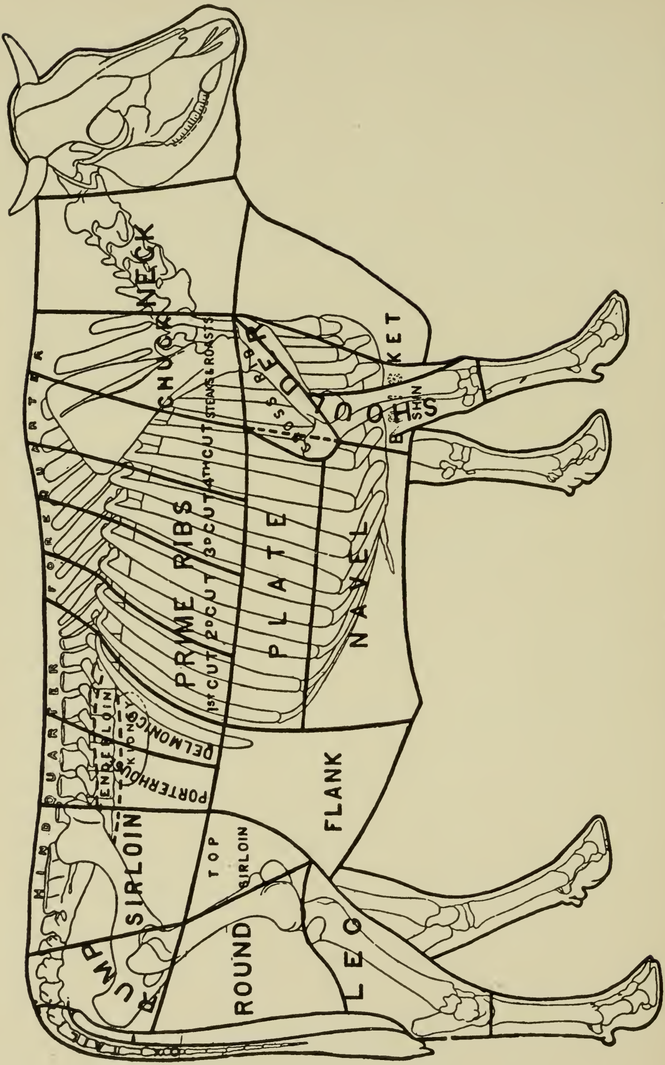
After beef is butchered, the carcass is first split lengthwise into two *sides* of beef, then each side is divided crosswise into the *fore quarter* and the *hind quarter*. The quarters are divided into the "*cuts*" or pieces as we buy them in the meat-shop. Different butchers make these cuts in slightly different ways, but in general they are the same.

By looking at the chart showing the cuts of beef one can learn to what section the various cuts belong.

The following are the usual *methods of cooking* the most common cuts:

Roasting: rib, loin, round, chuck.

Pot-roasting: chuck, rump.


NECK
CHUCK
SHOULDER
CROSS RIBS
BRISKET
SHIN
PRIME RIBS
1st CUT
2d CUT
3d CUT
4th CUT
STEAKS & ROASTS
PLATE
NAVEL
FLANK
DELMONICO
PORTERHOUSE
TENDERLOIN
KIDNEY
SIRLOIN
TOP SIRLOIN
ROUND
RUMP
LEG
TAIL
HIND QUARTER
FORE QUARTER

AMERICAN MEAT-CUTTING CHART — BEEF

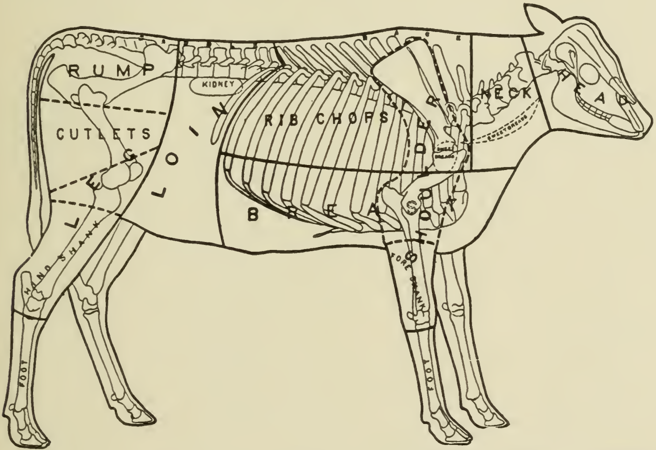
Copyright, 1915, by E. C. Bridgman.

Broiling: porterhouse, Delmonico or club steak, sirloin, T-bone steak.

Soup-making: neck, brisket, leg.

Braising: flank, chuck.

The fireless cooker is very useful in cooking tough meats, because they need long slow cooking if they are to be tender and juicy. Heat coagulates or "sets" the protein in the muscle tubes, and when the meat is cooked at a high temperature the protein becomes tough, just as the egg-white does when an egg is boiled.


RUMP
KIDNEY
CUTLETS
LEG
LOIN
RIB CHOPS
SHOULDER
NECK
HEAD
SWEETBREADS
BREAST
HIND SHANK
FORE SHANK
FOOT
FOOT

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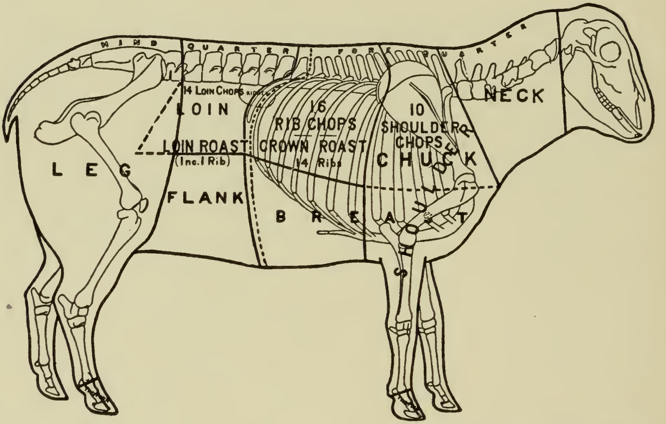
American Meat-cutting Chart — Veal

When meat is cooked, the object sought is to coagulate quickly the muscle juice in the ends of the tubes so that they are closed and no juice can escape; this process is called *searing*. Meat is seared, either by plunging it into boiling water, by placing it in a very hot oven, over hot coals, or in a very hot frying-pan. After the meat is seared, the temperature should be lowered and the meat cooked slowly. When broiling meat, keep the fire very hot and turn the meat every two or three minutes, in order to keep the meat at the proper heat.

Veal is meat from a calf about two months old.

Mutton is meat from a sheep about two years old.

Lamb is meat from a sheep less than one year old.


HIND QUARTER
FORE QUARTER
14 LOIN CHOPS
LOIN
LOIN ROAST
(Inc. 1 Rib)
16
RIB CHOPS
CROWN ROAST
14 Ribs
10
SHOULDER
CHOPS
CHUCK
NECK
LEG
FLANK
BREAST
SHOULDER

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American Meat-cutting Chart — Lamb

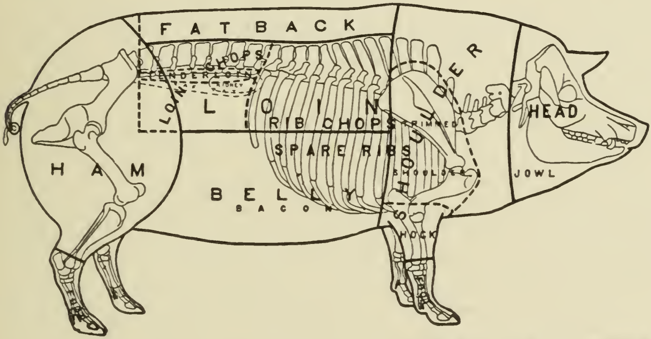
Spring Lamb is from a sheep eight weeks to three months old.

Pork is meat from the hog, and is used in great quantities. The cuts are shown on the chart. *Bacon* and *ham* are very generally used because they are both "cured" and can be shipped and easily kept.

Leaf lard is made from leaf fat (layers of pork fat), and is the best quality of lard.

Sausage is made of ground pork scraps, or trimmings; it is sold in bulk, or is stuffed in casings which are made of the treated skin of the intestines of the hog.

Meat contains such a large amount of protein that it is considered an important food for body-building. We do not need to eat as much meat as we usually do, because other foods can supply the necessary protein. There is probably no person who needs meat three times a day. When meats are expensive, well balanced meals may be planned without the use of much meat.


FAT BACK
CHOPS
TENDERLOIN
FAT
KIDNEY FAT
LOIN
LOIN
RIB CHOPS
TRIMMED
SPARE RIBS
SHOULDER
HEAD
HAM
SHOULDER
JOWL
BELLY
BACON
HOCK

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American Meat-cutting Chart — Pork

HOME PROBLEMS AND QUESTIONS

What is the price per pound of the following: round steak, rump-beef roast, chuck-beef roast, porterhouse steak, a whole ham, slice of ham, side of bacon, sliced bacon, mutton chops, veal steak, rib-pork roast?

Is there a slaughterhouse in the neighborhood?

Where are the large packing plants from which the local butcher buys meat? What firms manage the largest packing plants in the world?

See if you can find the government inspection stamp on any of the meat which is used in your home. What does this indicate?

LABORATORY EXERCISES

MEATS — TOUGH CUTS

SWISS STEAK

Place on a meat-board a piece of steak one inch thick cut from the round. Wipe the meat with a damp cloth, and pound flour into it, using the dull edge of a heavy saucer or small plate to pound with. Pound on both sides thoroughly. The pounding breaks apart the muscle of the meat, and helps to make it tender.

Have a frying-pan hot; in this place some fat and when it is melted place the meat in the pan. Brown the meat on both sides, and sprinkle it with salt and pepper. Add boiling water to half cover the meat. Tomato juice may be used instead, if desired. Chop onion, green peppers and carrots, and place over and around the meat. Cover and place in slow oven or fireless cooker. Cook until the meat is tender.

POT ROAST

Use a piece of rump for this. Wipe the meat with a damp cloth, and brown it in hot fat in the frying-pan. Place in a kettle, add boiling water until the meat is half covered. Diced carrots, turnips, onions, or celery may be added if desired. Place in a fireless cooker, or simmer gently on the stove until the meat is tender. For gravy, the water in which the meat is cooked may be thickened or served as it is.

BEEF STEW

1 lb. beef (tough cut)
2 potatoes
Flour
1 carrot
½ onion
Salt and pepper

Cut beef in one-inch pieces, dredge with flour. Brown the onion, and then the meat, in hot fat in a frying-pan. If there is fat that can be removed from the meat, this may be used in the frying-pan. Add enough boiling water to nearly cover the meat. Cook until the meat is almost done, then add the diced vegetables and cook until the vegetables are done. The liquid may be thickened before serving, if desired. If the stew is placed in the fireless cooker the vegetables may be added at first, since it is not desirable to open the cooker before the meat is done.

REVIEW QUESTIONS

1. What is a "side of beef"? a "quarter of beef"? a "cut of beef"?
2. Name some cuts of meat coming from the fore quarter of beef; from the hind quarter.
3. What cuts of beef should be used for broiling? for pot-roasting? for roasting? for braising?
4. What is meant by "searing"? How is meat seared?
5. What is meant when the recipe says "dredge" the meat with flour?
6. What is veal? mutton? lamb? pork?
7. What is "leaf lard"?
8. How is sausage made?
9. Do we need to eat meat three times a day?
10. What foods can sometimes be substituted for meat in the diet?

LABORATORY EXERCISES

SERVE A DINNER

Suggested Menu: Broiled pork chops
Baked stuffed potatoes
Creamed onions
Baking-powder biscuit
Banana salad

Estimate the cost of the meal.
Discuss order of work.
What dishes will be used?

SOUPS

When meat, bone and gristle are boiled in water, the liquid that remains after the boiling is called *stock*. This is used in making soup.

When stock stands, it sometimes forms a jelly-like mass that is called *gelatine*. This gelatine is formed from the connective tissue which is present in the meat, bones and gristle, and which is soluble in hot water.

Commercial gelatine is usually sold in small packages. It is made from the skin, ligaments and bones of animals, and is largely used in making desserts and salads. Gelatine is a form of protein, and has some food value.

When meat is prepared for making soups, it is cut into small pieces and put into cold water to allow the juice to soak out of the muscle tubes as much as it will. The extractives are also drawn out of the meat by the water.

Meat stock alone contains very little food value, but by adding milk, vegetables, or bits of meat, we make it much more valuable as a food. Soups made from plain meat stock have a value, however, because the extractives cause the digestive juices to become more active, and it is for this purpose that clear soups are served at the beginning of a meal.

LABORATORY EXERCISES

SOUPS AND GELATINE

SOUP STOCK

Soup stock may be made from fresh meat, bone and gristle, or it may be made from trimmings and left-over meats. There may be several kinds of meat cooked together to make the stock. Some housekeepers keep a "soup-kettle" in which scraps of meat, bone and trimmings are placed. When there is enough in the kettle, water is added and the stock made. Meat scraps must not be kept too long, however.

Bouillon is the cleared stock made from beef. *Consommé* is the cleared stock made from two or three kinds of meat.

Soup stock is used, in combination with other liquids, in soups and gravies, or with vegetables in vegetable soup. If fresh meats are used in making stock, the meat itself should be used in some other way, because it contains about as much protein as fresh meat. It is tasteless, and must be well seasoned or used with highly flavored vegetables. This meat may be used in croquettes, hash, meat pies, and in casserole of vegetables and meat.

BEEF STOCK

2 lb. beef
2 qt. cold water
1 tsp. salt

Cut the meat into small pieces; crack the bone (let the butcher do this when you buy fresh meat); pour the water over this and let stand one hour. Simmer for three hours. Strain and let cool. For bouillon remove the fat from the top of the stock and strain the stock through cheesecloth; season with a bay leaf or cloves, pepper and salt, and re-heat. Sometimes egg-white is used for clearing bouillon, using white and shell. How could this be done?

VEGETABLE SOUP

2 qt. stock
1 onion, sliced
1 stalk of celery or dried celery leaves
1 carrot, diced
1 turnip, diced
Salt and pepper

Any left-over vegetables may be used. Barley, macaroni, or rice are sometimes added. Add the vegetables to the stock. Simmer gently until vegetables are heated through or cooked.

Experiments: 1. Examine various kinds of gelatine that can be purchased in the store. How do they differ? What is the price per ounce?

2. Place one fourth teaspoon of gelatine in one tablespoon cold water, let stand five minutes. What has happened? Add two tablespoons boiling water. Does the gelatine dissolve?

3. Add two tablespoons of boiling water to one fourth teaspoon gelatine. What happens? What method should be used in making gelatine dishes?

PERFECTION SALAD

½ c. sugar
½ c. cold water
½ c. vinegar
2 c. boiling water
Juice of one lemon
2 tbsp. granulated gelatine
1 tsp. salt
2 c. sliced celery
1 c. shredded cabbage
3 pimentos, chopped

Soak the gelatine in the cold water for a few minutes. Add the boiling water and sugar. Stir until all the gelatine and sugar are dissolved. Add lemon juice, vinegar and salt. Let cool until mixture begins to "set", then stir in vegetables. Wet the inside of individual molds with cold water. Pour in gelatine mixture. Keep in cold place until "set." Remove from mold, serve on lettuce with mayonnaise dressing.

LEMON JELLY

1 tbsp. granulated gelatine
¼ c. cold water
¼ c. lemon juice
¾ c. sugar
1½ c. boiling water
⅛ tsp. salt

Follow directions for mixing given under Perfection Salad. Pour mixture at once into large mold. When it is cold and "set", remove from mold and garnish with whipped cream.

REVIEW QUESTIONS

1. What is "stock"?
2. Give directions for making "stock."
3. In what ways is meat stock used?
4. How is bouillon prepared?
5. Of what value in the diet are clear soups?
6. Why should the meat left from stock be used?
7. In what ways may this meat be used?
8. From what is commercial gelatine made?
9. Why should the vegetables not be added to the gelatine mixture until it begins to "set"?
10. Make a plan for a meal in which it would be proper to serve vegetable soup.
11. Make a dinner plan, using lemon jelly as the dessert.
12. Make a plan for a meal in which it would be correct to serve Perfection Salad.

POULTRY, GAME AND FISH

Poultry is the name given to domestic birds suitable for food, such as chicken, turkey, goose and duck. *Game* is the name given to wild birds and animals that are hunted for food, such as quail, partridges, wild ducks and geese. *Pigeons* and *squabs* are classed as game. In the United States game has become very scarce and is little used for food.

Chicken is used more than any other kind of poultry, and can be purchased in the market at any season of the year. A *spring chicken* is a chicken not more than four months old. A *broiler* is a young chicken that weighs about a pound, or a pound and a half. In *selecting* chickens in the market, it is necessary to know how to tell the age. A young chicken will have smooth yellow legs, and the end of the breast bone will be soft and flexible, while an older bird has scaly legs and a firm breast bone. In a dressed bird, a large number of small pinfeathers indicates that it is young, while long hairs in place of pinfeathers show age in the bird.

The breast or *white meat* of chicken is especially tender because it is composed of short fibers with a small amount of connective tissue and very little fat. Because of the structure of the meat and its low percentage of fat, white meat is easily digested, and is therefore often used in invalid cookery.

Poultry and game are much like meat in food value, and when either is served it takes the place of meat in the meal.

FISH

The flesh of fish is not unlike the flesh of meat, and can be used as a meat substitute.

In some sections of this country fish can be obtained fresh, and is best when cooked soon after being caught. Fresh fish is more difficult to keep in good condition than meat, and is therefore not easily shipped. When fresh fish can be purchased, it should be used often to vary the diet. Many kinds of fish are canned, dried, salted or smoked, and in these forms are found in every local market; but fresh fish is not easily obtained inland, — in many cases because there is no demand for it.

Oysters are one form of shellfish used as food. The oyster is protected by a hard shell covering. This shell is usually removed before the oyster is sold in the market. The name "Blue Point", and other special names, formerly indicated the locality where the oysters were grown, but this is no longer the case.

Oysters stand shipping well, and are sold in most localities during the winter months at least. While oysters have little food value, they are much liked for their flavor.

LABORATORY EXERCISES

POULTRY AND FISH

To dress a chicken: 1. Remove feathers by pulling them out, after plunging the fowl into boiling water and holding it there for a moment or two. Fowls are sometimes picked without scalding, if the work can be done immediately after they are killed.

2. Singe the plucked fowl by holding it in a flame of gas or burning paper, being sure that all parts are exposed during the process so that all hairs are removed.

3. Cut off the head, if it has not been removed. The neck may be removed by pushing back the skin and cutting it off.

4. Remove the feet by cutting and breaking the legs at the joints.

5. Make an incision one inch above the vent and crosswise between the legs. Draw out the intestines and other organs carefully, cutting away the vent. Remove from the mass the heart, liver and gizzard, being careful not to break the gall bladder which lies under the liver. Cut the gall bladder away carefully.

6. Remove the skin from around the gizzard; open the gizzard and remove the inner skin and contents.

7. Wash the liver, gizzard and heart, squeezing the latter to remove any blood. These organs are known as the "giblets."

8. The crop and windpipe may be removed at the neck. Do this without breaking the crop, or tearing the skin at the neck.

9. Remove all pinfeathers with a sharp-pointed, small knife. Remove the oil bag from the tail.

10. Wash the chicken well in cold water, both inside and out. Dry with a cloth. The fowl is now ready to be used for baking.

11. When a fowl is to be cut into pieces, as for stewing, it is usually convenient to remove the wings and legs before removing the intestines and other organs from the body.

Poultry should always be allowed to stand several hours after dressing before it is cooked.

STEWED CHICKEN

Place the pieces of chicken in a kettle and cover with boiling water; boil a few minutes; then add one tablespoon salt, and cook slowly until the meat is tender when pierced with a fork. Remove chicken to a warm platter and set in a warm place. Add milk to the liquid in which the chicken was cooked. Thicken with flour, and cook for five minutes. Pour over chicken and serve.

Dumplings may be served with the stewed chicken if desired. These are cooked by placing them on top of the pieces of chicken in the kettle, keeping the dough out of the water as far as possible. Cover the kettle tightly. Cook twenty minutes. Remove dumplings and chicken; thicken gravy and serve. Dumplings of this kind are made like baking-powder biscuits, except that the dough is not so stiff.

SCALLOPED OYSTERS

1 pt. oysters
3 c. bread crumbs *or*
2½ c. cracker crumbs
4 tbsp. butter
Milk
¼ tsp. pepper
½ tsp. salt

Look over the oysters carefully, removing any bits of shell or other refuse. Drain the liquor from the oysters by straining it through a wire sieve. Wash the oysters by dipping the sieve into water, or by allowing water from the faucet to run through them. Melt the butter in a frying-pan; add the crumbs, salt and pepper. Place a layer of crumbs in a buttered baking-dish, then a layer of oysters, then a layer of crumbs, until the dish is filled, finishing with a layer of crumbs on top. Add the liquor left from draining the oysters, and just enough milk to show on the top at the side of the dish. Bake in a moderate oven forty to fifty minutes.

FRIED OR SAUTÉED FISH

Clean the fish carefully, being sure that all the scales are removed. Split the fish on the under side, lengthwise, and clean the inside carefully. A large fish can then be cut into pieces of the desired length; a small fish need not be cut. Roll each piece in equal parts of corn meal and flour, or in egg and bread crumbs as for croquettes. Fry in deep fat or sauté in the frying-pan until tender. Tomato sauce may be served with the fish if desired.

REVIEW QUESTIONS

1. What is included under the name poultry?
2. What is included under game?
3. What is a "spring chicken"? a broiler?
4. How may the age of a fowl be determined?
5. What is the white meat of a chicken?
6. Is it tender or tough? Explain the structure.
7. What foods should not be used in a meal when chicken is served?
8. In what forms may fish be found in every market?
9. What kinds of fish, fit for food, are caught in the rivers and lakes in this locality?
10. In what ways have you seen fresh fish served, other than fried or sautéed?
11. What is the price of oysters per quart? per pint?

12. How are oysters kept at the store?
13. Is it economical to serve scalloped oysters and meat in the same meal? Why?

DESSERTS

Desserts may be divided into four large groups: (1) fruits, either fresh, dried, or cooked, (2) puddings, (3) pastry, (4) frozen desserts; as a fifth, cakes may be added.

Elaborate desserts, which require a great length of time spent in preparation, should not be used often in most households, because simple desserts taste just as well and the housekeeper may use her time for more useful work, or for recreation.

In choosing a dessert to use at the end of a meal, one must consider what foods have already been served in the other courses. If everyone has had all the food needed and feels satisfied before dessert is served, it is then a wise plan to omit dessert. When a dessert is served *after a heavy meal* it should consist of fruit or a gelatine pudding, rather than of pie or a rich pudding. When pie is served it should follow a meal in which little fat and protein have been eaten. No one should eat pie three times a day, nor every day.

A pie should have a light, flaky, tender *crust* that is thoroughly baked. Pie crust must be chewed thoroughly, since even the best is hard to digest. It is easier to make tender pie crust from pastry flour, because that contains less gluten and more starch than bread flour. Bread flour may be used, however. Many kinds of fat are used in pie crust, such as lard, butter, vegetable fats and oils. Fat makes the crust "short" and flaky, and is often called "*shortening*." The crust is made tender by careful handling, and by folding and rolling several times so that air is folded into the dough. This air, and the steam formed from the water used in the mixture, expand the dough during baking and make the pie crust light.

Desserts containing eggs and milk should be served only at the end of a meal when little protein has been eaten in the other courses.

Frozen desserts may be made, mainly of cream, milk, eggs and sugar, such as plain ice cream, French ice cream, or mousse; or they may be made of water, fruit juice and sugar, such as sherbet, water ice or frappé.

Desserts are frozen by the use of ice mixed with coarse or "rock" salt in the proportion of one part of salt to three parts of cracked ice. When ice melts, heat is absorbed from the surrounding materials. When salt is added, the ice melts at a lower temperature and a greater amount of heat is absorbed. The freezing of the mixture, in a can surrounded by ice, is brought about because the ice and salt absorb the heat from the contents of the can.

In freezing a mixture that is to be of a fine smooth texture, it is necessary to turn the crank of the freezer slowly and steadily. Ices and sherbets do not need such careful beating, and mousse is not beaten at all after it is put into the freezer.

HOME PROBLEMS AND QUESTIONS

Plan a dinner, consisting of meat, vegetables and salad, that is suitable for the season.

Plan one consisting of meat, vegetables, salad and dessert, suitable for the season.

Plan a "one-dish" meal.

Would other foods need to be added for the small child? If so, what would you add?

Plan a dinner in which custard pie might be served.

The following dinner will be served during the next laboratory period:

Swiss steak with gravy
Candied sweet potatoes
Salad: green beans, chopped onion and parsley, with French dressing
Lemon gelatine with whipped cream

Make a plan for preparing the dinner. What proportions of each recipe should be made for the number to be served?

Make a list of the food, with the amount that will be needed for the meal. Give the order in which the food is to be prepared. What dishes will be needed for serving the meal in the English style? Bring the plan to class for discussion.

Find in the dictionary or encyclopedia what you can about spices, such as nutmeg, cloves, cinnamon, mustard and ginger; also about pepper and salt. How is vinegar made? From what is extract of vanilla made?

LABORATORY EXERCISES

DESSERTS

PLAIN PASTRY

1 c. flour	½ tsp. salt
⅓ c. lard	Ice water

Sift the flour before measuring it. Add salt to flour, and sift again. Cut in shortening with two knives. Add just enough water to make a dough that can be rolled. Chill, roll out, fold, roll again, repeating two or three times.

When a crust is to be baked without a filling, the dough may be placed on the outside of the pie-pan turned upside down. Prick the crust well with a fork to keep it from blistering. A pie crust should be baked in a hot oven. Care must be taken, however, not to burn the edges.

Let members of the class suggest fillings for a one-crust pie. Perhaps some can bring a good recipe that may be used in class.

Fruit pies are much easier digested if they are made with only a top crust. The fruit is placed in a deep pie-pan of earthenware, enamel ware, or glass. The crust is then placed over the top, pressed down well on the edge, and baked. When two crusts are used, the lower crust must be baked thoroughly and the pie should be removed from the pan as soon as it is taken from the oven. The steam which collects on the pan has a tendency to make the lower crust soggy.

This is a good pudding to use for Thanksgiving or Christmas:

STEAMED PUDDING

2 c. bread crumbs
½ tsp. soda
⅛ tsp. cloves
⅛ tsp. cinnamon
¼ tsp. salt
½ c. suet
½ c. molasses
1 egg
¾ c. milk
½ c. currants
½ c. raisins

Mix a little flour with the suet, then chop it in a chopping-bowl with a chopping-knife, or put it through the meat-grinder. Beat the egg and add the milk. Wash the raisins and currants in a wire strainer by running cold water through them; dry on a towel; cut the raisins in halves. Mix the raisins and currants with a little flour, as this makes them mix with the dough more easily. Add crumbs, spices, soda, currants, raisins and suet to the milk-and-egg mixture. Then add the molasses. Pour into a well greased pudding mold. Steam two hours. Remove lid of pudding mold, place pudding in oven and bake for a few minutes. Serve with any kind of sauce desired.

HARD SAUCE

$\frac{1}{3}$ c. butter	1 tsp. vanilla

1 c. powdered sugar

Cream the butter and add sugar gradually, beating until the sauce is light and creamy; add flavoring. Set in a cool place until served.

PUDDING SAUCE

$\frac{1}{2}$ c. sugar	3 tbsp. butter
$\frac{3}{4}$ c. water	$\frac{1}{4}$ tsp. vanilla

A little cinnamon or nutmeg may be added

Boil together until the sauce is of the desired thickness. This may be varied by pouring the hot liquid over a well beaten egg. Beat mixture thoroughly. Why should the mixture be poured over the egg slowly?

REVIEW QUESTIONS

1. Into what groups may desserts be divided?
2. Should elaborate desserts be served often in most homes? Why?
3. When should pie be eaten?
4. What is "shortening"?
5. State the characteristics of a good pie crust.
6. What makes the crust "light"?
7. What kind of desserts may be served at the end of a heavy meal?
8. What materials are used for freezing desserts? in what proportions?
9. Explain the freezing of ice cream.
10. How is a smooth texture obtained in a frozen mixture?

LABORATORY EXERCISES

SERVE A DINNER

Suggested Menu for a company dinner:
Bouillon, wafers
Swiss steak with gravy
Candied sweet potatoes
Salad: green beans, chopped onion and parsley
Lemon gelatine with whipped cream
Date cakes

Plan other company dinners.
Plan a menu for a Thanksgiving dinner.
Plan a menu for a Christmas dinner.
Discuss the cost of all meals served.

THE DAILY MEALS OF THE FAMILY GROUP

The three meals that are eaten daily by the family group have been studied separately, but before leaving the subject it is necessary to consider the making of the plans for the day and for the week. One meal may be planned correctly, but the diet is not well balanced unless the three meals for each and every day furnish the proper amount of foodstuffs for body-building and for warmth and energy.

How, then, shall one know when enough of the right kind of food is eaten? Persons who have studied the science of nutrition have set standards to follow that are a great help to the housekeeper.

Heat and energy furnished by a given amount of food are measured by the scientist, and the unit of measure that he uses is called a *Calorie*. A Calorie is the amount of heat required to raise the temperature of one pound of water four degrees Fahrenheit, or a kilogram of water one degree centigrade.

By placing food in a food calorimeter, a machine designed for the purpose, it is possible to measure

Serving the Dinner with a Tea-cart

how much heat will be produced from a certain amount of food when it is burned, or oxidized. In a machine called a respiration calorimeter, it is possible to measure the amount of warmth and energy used by a person in doing work, or in merely keeping the body warm and active. Even when quiet, a certain amount of energy is being used by the body, as for example in breathing.

Since, then, the scientist is able to measure in Calories the amount of heat required by the body, and is also able to measure how many Calories are furnished by portions of different foods, it becomes possible for him to set a standard for the daily requirements of food. This requirement varies with the age, the size, the weight and the work being done by the person eating the food.

The following is one *standard of food requirements:*

WARMTH AND ENERGY REQUIREMENTS FOR ONE DAY

MEMBER OF FAMILY	AGE	WEIGHT IN POUNDS	TOTAL CALORIES REQUIRED
Man	40	154	2770
Woman	37	125	2250
Baby	1	21	840
Boy	3	35	1400
Boy	12	75	2250
Girl	6	41	1394
Girl	9	56	1848
Woman	90	110	1500
Total			14252

A list of the number of Calories furnished by a pound of the different foods has been made and published in a bulletin issued by the Office of Experiment Stations, U. S. Department of Agriculture, Washington, D. C. It is entitled "The Chemical Composition of American Food Materials." It is difficult, however, to learn from this bulletin, without the use of a great deal of arithmetic, just how much food should be used to furnish a certain number of Calories, and for this reason there have been prepared convenient tables of *standard portions* of the dishes ordinarily used. A "standard portion" is the amount needed to furnish 100 Calories and it is sometimes called a "100-Calorie portion."

At the end of this section will be found a list of 100-Calorie portions of foods.

The following method should be used when calculating the number of Calories being served in a meal:

1. Make a list of the foods to be used.
2. Decide on the size of the portion of each to be served — as, for example, whether a whole orange or one half orange is the amount to be used.
3. Look at the table of "100-Calorie portions" and find the size of the portion of each food needed to furnish 100 Calories to the body.
4. If the portion furnishing 100 Calories is more than you expect to serve, then multiply 100 by one half, one third, or by whatever proportion of the "100-Calorie portion" is to be served, to determine the number of Calories being supplied. For example, if one cup of cooked oatmeal is a "100-Calorie portion" and only a half cup of cooked oatmeal is being served, it will be necessary to multiply 100 by $\frac{1}{2}$ to determine the number of Calories served.
5. If the portion furnishing 100 Calories is less than the amount served, then 100 must be multiplied

by the number of times the portion is to be used to make the desired serving. For example, one half baked apple is a "100-Calorie portion", but if a whole baked apple is to be served, it will be necessary to multiply 100 by 2 to determine the number of Calories supplied.

The following is an example of the way of working out the number of Calories served for breakfast:

BREAKFAST

FOOD	AMOUNT SERVED	CALORIES
Orange	½ orange	50
Whole milk to drink	¾ measuring cup	100
Oatmeal, cooked	½ cup	50
Cream, this for oatmeal	¼ cup	100
Sugar for oatmeal	½ scant teaspoonful	25
Bread	1 slice, ½ in. thick	100
Total Calories		425

Each meal may be worked out in the same way for each member of the family. The total amount of the foods needed for the entire family may be found by adding together the individual portions. No housekeeper will need to work this out every day, because after doing it several times she can estimate by the amount of food she is serving whether enough Calories are being supplied in the diet.

Other *necessary points* to be observed in planning the day's diet are:

1. Furnish variety in the diet by serving different kinds of food or by changing the method of preparation.

2. It is necessary to have all the foodstuffs repre-

sented in the day's diet, and it is best to have them in good proportions in each meal.

3. An attractive meal is enjoyed by the family. To be attractive it must be well cooked and served, and the foods combined properly in regard to flavor and appearance.

4. It is always wise to consider the cost, and to remember that the most expensive foods often have no greater food value than cheaper kinds. One fourth to one half of the average income has to be spent for food, and when the housekeeper is careless in selecting the food, more money than is necessary may be spent.

5. It is necessary to change the diet to suit the season of the year. The body requires less food for warmth in summer than in winter, and there is less used for muscular energy, therefore foods containing large amounts of fat are not required. Some of the foods to be avoided in summer are hot breads, fat meats, pastries, rich cakes, sauces and gravies.

6. It is very important to know that children need simple, well cooked foods, that milk is essential for every child, that butter is better for the child than a butter substitute because the butter contains vitamines, that fruits and cereals are essential, and that eggs, milk and cereals are better to use than a large quantity of meat.

7. No one can balance meals properly without knowing which foods contain the foodstuffs needed.

HOME PROBLEMS AND QUESTIONS

Plan meals that might be used by your family for a day in summer.

Plan the meals for a day in winter.

Make a list of groups of vegetables that may correctly be served together.

Estimate the cost of the following meal for six persons:

Broiled mutton chops
Baked stuffed potatoes
Tomato salad with French dressing
Sliced peaches with cream
Sponge cake

LABORATORY EXERCISES

FROZEN DESSERTS

VANILLA ICE CREAM

1 qt. cream
1 tsp. vanilla
$\frac{3}{4}$ c. sugar

Wash and scald the can, cover and dasher of the freezer. Carefully place the can in the freezer. Place the ice in a heavy cloth sack and pound until it is broken into very small pieces. Crush the rock salt or coarse salt. Pack the freezer with alternating layers of ice and salt, until the ice is just below the top of the can. Have the ice-cream mixture ready and pour it into the can; place the dasher in the can; cover; add ice until the can is covered. Turn the dasher slowly and steadily until it will not turn any more. Remove ice and salt from top of can; wipe off carefully; remove lid from can; take out dasher carefully; cover can and put a stopper in hole in cover. Drain off all water from the tub, repack with ice and salt, using a little less salt (about four parts ice to one part salt). Cover the can with ice; cover freezer; set in cool place and let stand several hours.

If no freezer is available, two pans may be used for freezing, placing a small container in a larger one, and packing the ice and salt around it. The stirring is done with a spoon. This method of freezing is successful only when a small quantity of ice cream is being made.

LEMON ICE

4 c. water	2 c. sugar
¾ c. lemon juice	

Boil sugar and water together for five minutes. Add lemon juice. Strain if not clear. Freeze.

CHOCOLATE MOUSSE

1 pt. cream	4 oz. chocolate
½ c. powdered sugar	¼ tsp. salt

Cut the chocolate into small pieces, or grate it. Place in a small saucepan in a pan of boiling water until it is melted. Whip the cream; add sugar, salt and melted chocolate. Turn into a mold, and pack the mold in a pan of ice and salt. Let it stand five hours.

Smaller proportions of the recipes may be made if desired; then the freezing will require less time.

100–CALORIE PORTIONS

While the mixtures are freezing, let the class examine 100-Calorie portions of the following foods that have been prepared by the teacher: eggs, beefsteak, bacon, bread, butter, oatmeal, milk, cheese, potatoes, dried beans, apples, onions, carrots, rice, macaroni, olive oil, cottonseed oil.

What portion of each of these foods would usually make one serving? Calculate how many Calories would be furnished by the following meal, using the table at the end of this section:

Broiled beefsteak
Baked potato
Lettuce with French dressing
Baked apple

REVIEW QUESTIONS

1. Define the term "Calorie."

2. What is a "standard portion"? By what other name is it sometimes called?

3. How do scientists determine how many Calories we need each day?

4. Which of the foodstuffs yield warmth and energy? Which of these are used by the body in other ways than for the production of warmth and energy?

5. How should the foodstuffs be distributed in the meals eaten in one day?

6. Can you explain why the boy twelve years old requires a greater number of Calories per day than the woman ninety years old?

7. Are the following meals for a day well planned? Explain the reason for your answer.

BREAKFASTS

(1)
Eggs and bacon
Cocoa
Hot baking-powder biscuit

(2)
Baked apple
Oatmeal
Toast
Cocoa

LUNCHEONS

(1)
Cream soup
Cheese strata
Salmon salad
Bread and butter

(2)
Bouillon
Apple salad with cooked dressing
Lemon gelatine
Bread and butter

DINNERS

(1)
Roast beef
Baked beans
Lettuce with French dressing
Rice pudding
Bread and butter

(2)
Baked stuffed potatoes
Buttered carrots
Fresh celery
Apple pie
Cake

8. What foods is it well to avoid in hot weather? Why?

9. Name some foods that may be served to small children; some that should not be served.

10. Why is butter better for the child than a butter substitute?

11. State rules, regarding the purchase of food, that will help reduce the amount of money spent.

12. What are the characteristics of an attractive meal?

100-CALORIE PORTIONS OF UNCOOKED FOODS

FOOD	WEIGHT IN OUNCES	MEASURE	REMARKS
Apple	7.4	1	large size
Bacon	0.6	slice	4½ by 1½ by $\frac{1}{16}$ inches
Banana	5.5	1	large size
Beef, round steak	2.2	1 serving	2½ by 2¾ by ½ inches
Butter	0.5	1 tablespoon	
Carrot	10.0	1	length 6½, diameter 2 inches
Cabbage	11.2	5 cups	shredded
Corn on cob	9.0	2 ears	6 inches long
Cottonseed oil	0.4	1 tablespoon	
Cheese, American	0.8	cube	1⅛ inches
Cream, 40%		2 tablespoons	
Eggs	2.4	1	very large
Flour, white	1.0	4½ tablespoons	
Lettuce	18.5	2 heads	large size
Macaroni	1.0	¼ cup	broken into 1-inch pieces
Milk, whole	5.0	¾ cup	
Mutton chops	1.0	1 chop	
Navy beans	1.0	2 tablespoons	dried
Oatmeal	1.0	¼ cup	rolled
Olive oil	0.5	1 tablespoon	
Onions	7.0	4	medium-sized
Orange	9.5	1	large
Peach	10.5	3	medium-sized
Peas, green	3.5	¾ cup	shelled
Rice	1.0	2 tablespoons	
Sweet potato	3.6	½ potato	medium-sized
Sugar	0.9	2 tablespoons	scant
Tomato, fresh	15.5	2 or 3	medium-sized

100-Calorie Portions of Cooked Foods

Food	Weight in Ounces	Measure	Remarks
Apple, baked	2.3	½ apple	large size, 2 tbsp. sugar
Baking-powder biscuit	1.2	2 biscuits	small
Bread, white, baker's	1.0	1 slice	½ inch thick
Corn, canned	3.5	1 serving	
French dressing	0.6	1½ tablespoons	
Mashed potatoes	3.5	½ cup	scant
Mayonnaise dressing	0.5	1 tablespoon	
Potato, baked	3.0	1	medium-sized
Oatmeal, cooked	7.9	1 cup	
Saltine cracker	0.8	8 wafers	
Shredded wheat	0.9	1 biscuit	
Sponge cake	0.9	piece	1½ by 1½ by 2 inches

THE PRESERVATION OF FOODS

Many kinds of fruit and vegetables, all meat, fish and poultry, soon spoil unless preserved in some way. The *spoiling* of food is brought about by molds, yeast and bacteria, which are called *microorganisms.* Yeast and bacteria are so small that they can be seen only through a powerful microscope, but molds can be seen without using a microscope. All of these microörganisms require food, warmth and moisture for growth. They find food and moisture in many of our foods, and because they live in the food it changes and perhaps spoils.

Food is preserved either by killing the microorganisms or by hindering their growth. There are *four methods* used: (1) by keeping food at a low temperature, (2) by drying, (3) by the use of preservatives and (4) by sterilization.

Foods in *cold storage* are kept at such a low temperature that the growth of the microörganisms is hindered. Such foods as meat, eggs, green vegetables and fruits may be kept in this way for different lengths of time without spoiling.

Drying is used for preserving certain fruits and vegetables, meat and fish. The dried product lacks the moisture required by the microörganisms for growth; therefore their action in the food is hindered.

COLD-PACK CANNING

Packing asparagus into the jar.

Preservatives are materials used to hinder the growth or to kill microörganisms. Sugar in quantity, salt, vinegar and spices are harmless preservatives. Saltpeter and smoke are also used. There are also harmful substances that will preserve the food, but which are not healthful to use, such as formaldehyde, benzoic and salicylic acids.

The best method for preserving food is to kill the microörganisms by the use of heat. This process is called *sterilization.* In canning, the food is sterilized and then sealed in sterilized containers so that no more microörganisms can reach it from the air. Fruits, vegetables, meats, fish and poultry may be preserved by this method.

LABORATORY EXERCISES

PRESERVATION OF FRUIT

MARMALADES

The general rule for the proportion of ingredients in marmalades is as follows:

Use one half as much sugar as fruit, by weight.

Use three cups of water to each pound of sugar.

Make orange marmalade:

ORANGE MARMALADE

1½ doz. oranges
6 lemons
Water
Sugar

Wash fruit; slice in very thin pieces without removing skins; remove seeds; cut into small pieces. Weigh the fruit, calculate the sugar that is needed; calculate the water that is needed. Place the water over the fruit and let it stand twenty-four hours. Boil gently for two hours, add sugar, and boil until the syrup is as thick as desired (usually about one hour). Place in small sterilized jars or glasses; set aside to cool.

When the marmalade is cool, melt paraffin and pour over the top; cover the jars or glasses with lids or paper.

GRAPE CONSERVE

2 qts. grape juice
3 lbs. granulated sugar
2 lbs. seeded raisins
1 lb. English walnut meats

Boil the grape juice with the raisins and sugar, until it thickens when a drop is placed on a cool saucer. Add walnuts, chopped fine. Cook a few minutes; place in sterilized jars or glasses. Cover the conserve with paraffin when it is cold.

GRAPE JUICE

10 lbs. Concord grapes
2 qts. water
2 lbs. sugar

Wash the grapes and remove them from the stems, add the water; boil until the skins are soft. Strain through a wet jelly-bag. Re-heat the juice and add the sugar; boil for two or three minutes. Pour into hot sterilized jars or bottles; seal. When corks are used in the top of bottles, seal by using paraffin. This juice may be made in the fall, and the conserve made during the winter.

The grapes left in the jelly-bag may be run through a wire sieve, and the pulp added to the grape conserve, if the conserve is to be made at the same time as the grape juice. If not, the pulp may have sugar added and be boiled until thickened, and used as grape butter.

SWEET PICKLED PEACHES

7 lbs. peaches (after stones are removed)
3½ lbs. sugar
2 oz. cinnamon
1 qt. vinegar
2 oz. cloves

Make a syrup of the sugar, vinegar, stick cinnamon and cloves; boil until it is thickened. Cut peaches in halves. Add peaches and cook until they are tender. Remove each piece with a spoon and pack in a sterilized jar; boil the syrup until it is thick, and pour it over the fruit.

REVIEW QUESTIONS

1. What causes the spoiling of fruits, vegetables and meats?
2. How is food preserved?
3. What foods are kept in cold storage?
4. What foods may be dried?

5. Name the materials that are used to preserve food.

6. What is the method of preservation used in making orange marmalade? sweet pickled peaches?

7. What is meant by sterilization?

8. What is a sterilized jar? (See section on Jelly-making.)

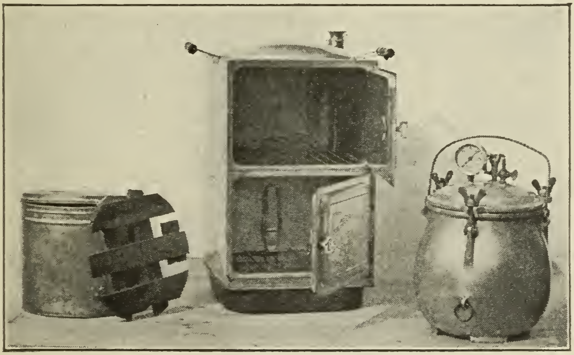
9. Why must the sterilized jars be used while they are hot, and without wiping them out with a towel?

10. Which method of preservation is the best to use for food when it must be kept for long periods?

CANNING

Canning may be done in two ways:

1. *Open-kettle method*, when the food is cooked until it is tender and sterilized, and is then put in sterilized jars and immediately sealed. This is the oldest method of canning foods.



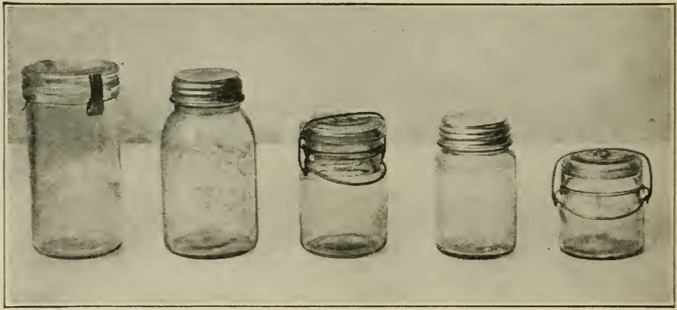
Types of Canners

Left to right: hot-water bath, steam cooker, pressure cooker.

2. *Cold-pack method*, when the food is packed in jars, the jar filled with liquid, — which may be syrup, water, or broth, — the rubber adjusted to the can, the cover placed in position, but only

partly screwed or clamped on, and the jar placed in a cooker in which the food will be sterilized and cooked until tender. The jar is then removed from the cooker and sealed at once.

Cookers used for canning by the cold-pack process are (1) the steam-pressure cooker, (2) the steam cooker and (3) the hot-water bath cooker, the last being the most commonly used. This cooker can be made at home by using a wash-boiler or other container that has a lid and a false bottom, or rack, to raise the jars at least three quarters of an inch or an inch off the bottom of the container. The steam-pressure cooker and the steam cooker are manufactured in different types.



TYPES OF JARS USED IN CANNING

Canning can be done in the shortest time with the pressure cooker, but the product is no better than that secured with the hot-water bath. Both the steam-pressure cooker and the steam cooker can be used for other kinds of cookery than canning, which makes them comparatively less expensive.

There are numerous *types of jars* that may be used, and any type is satisfactory when the cover fits well and is in a sanitary condition. Many old screw-top jars are not fit to use unless new lids are purchased, because dirt cannot be cleaned from the crevices when it has collected in the old lids. In buying new jars, it is better to select those with glass lids and a large "mouth" or opening. Tin cans may be used instead of glass, but any food that will keep in tin will be more easily and safely canned in glass. Tin is used in commercial canning, because tin containers can be more easily packed and shipped.

Good *can-rubbers* are necessary if the products placed in the cans are to keep well. Rubbers should be tested before being used, by stretching them to see if they will break, and by doubling them together and pressing at the fold to see whether the rubber will crack. Good rubbers will not be affected by either test.

Attractive Jars of Fruits and Vegetables

Select for canning, firm fresh fruit that is not overripe, vegetables that are fresh and crisp, and meat that is in perfect condition. If poor products are used, the results will be poor.

Vegetables and meat are most successfully canned by the cold-pack method. Fruits keep their shape and color better when canned by this method, but the open-kettle method may be used more successfully with fruits than with vegetables and meats.

LABORATORY EXERCISES

CANNING FRUITS AND VEGETABLES

To can pears by the cold-pack method: Wash the pears, peel, cut into halves and remove the cores. Place in a clean, hot, tested jar, packing carefully. Over the pears pour boiling syrup until the can is filled to within one fourth inch of top; adjust lid and partially seal. Place can in hot-water bath cooker, having the water deep enough to come one inch above the top of the can. The time for boiling, or "processing" as it is called, is given in the table at the end of the lesson. Remove can from cooker and seal at once. Follow the directions about removing the can which come with the pressure cooker. Never remove the lid from the can after processing. Turn the can upside down, so that it can be observed for leakage (which means a poor seal) and place where there is no draft. Lay a towel over the cans until they are partly cooled. This will prevent any chance of a draft reaching the hot can and causing it to crack. When cold, jars may be wrapped in paper and stored, or placed in a dark, cool, dry place without wrapping.

To test a jar: Fill the jar half full of water. Test the can-rubber. Place the rubber and lid on can. Seal. Turn can upside down. If it does not leak after standing a few minutes it is in good condition to use for canning. When using the jar, be sure that the same lid with which it was tested is replaced on the jar. If a jar leaks, remove the lid and test with another lid. In using glass lids there sometimes will be found a rough spot on the lid or on the jar that may be removed by scraping with a knife, after which the fit will be perfect.

If jars are heated before using, then hot syrup, water, or broth may be poured into them without cracking the jar, and the jar may be placed in hot water in the water bath, which means a saving of time in cooking.

SYRUP FOR CANNING

Use three cups of sugar to two cups of water, boiling until as thick as desired. Usually for canning fruit by the method given for canning pears, a medium thick syrup would be best to use. A medium thick syrup is one that has begun to thicken and becomes sticky when cooled on the spoon. For very sour fruits a thicker syrup should be used.

To can tomatoes by the cold-pack method: Scald or " blanch " tomatoes 1½ minutes. The easier way to do this is to place the tomatoes in a frying-basket and set the basket into boiling water. Lift out the basket and dip at once into cold water. Remove from water, remove skins and stem-ends. Pack tightly into tested jars, pressing down gently but firmly. This will cause enough juice to form in the can so that no boiling water need be added. Add 1 teaspoon salt to each quart. Adjust rubber and lid, partially seal. Place in hot-water bath, steam cooker, or pressure cooker. Cook for the required length of time, as given in the table at end of lesson. For finishing the canning, follow directions given in the recipe for canning peas.

All vegetables must be blanched, then cold-dipped before packing in cans. This reduces the bulk, does away with objectionable flavors and makes the color better. In canning most vegetables, it is necessary to add boiling water to fill the can after the food is packed in the can. The can should be filled to within a quarter inch of the top.

TIME TABLE FOR PROCESSING FRUITS AND VEGETABLES

This is the time required for quart jars. For pints, reduce the time five minutes.

	For Hot-water Bath	For Pressure Cooker	For Steam Cooker	Blanch for Either Method
	Minutes	Minutes	Minutes	Minutes
Apples . . .	15 to 25	5 lbs. for 10	15–25	2
Beans, string	120 to 180	20 lbs. for 40	120–180	5 to 10
Cherries . .	16	5 lbs. for 5 to 6	16	1
Corn . . .	180	20 lbs. for 40	180	5 to 15
Greens . .	90	20 lbs. for 30 to 35	120	15 to 20
Peaches . .	20	5 lbs. for 5 to 10	20	$\frac{1}{2}$
Pears . . .	20 to 30	5 lbs. for 5 to 10	20	$1\frac{1}{2}$
Peas . . .	120	20 lbs. for 40	120	5 to 10
Pineapple .	20 to 30	5 lbs. for 10	20	3
Sweet peppers	90	20 lbs. for 35	90	10
Strawberries .	8 to 16	5 lbs. for 5 to 6	8–16	——
Tomatoes .	22	10 lbs. for 10	22	$\frac{1}{2}$ to 1

REVIEW QUESTIONS

1. Name the two methods used for canning fruits, vegetables and meats.
2. Which is the older method? the better method?
3. Name the types of cookers that may be used in canning. In which can the processing be done most rapidly?
4. What are the necessary characteristics of a jar used for canning?
5. What type of jar is best to purchase?
6. What is the price per dozen of pint jars? of quart jars? of half-pint jars?
7. Is it advisable to use tin cans for home canning?
8. State the method for testing rubbers.
9. How should a jar be tested before using?
10. What should be the quality of fruits and vegetables selected for canning?
11. What is meant by the term "processing"? blanching?
12. Why must the lids never be removed from the cans after processing?

JELLY–MAKING

Jelly is made from the juice of fruits. *Good jelly* is clear, of a pleasing color, tender and firm enough to keep its shape when turned out of the mold. It should not, however, be so stiff that it does not "quiver."

Fruit juice can be made into jelly when it contains *two substances*, (1) *pectin* and (2) *acid.* All fruits do not contain these in sufficient amounts to make good jelly; and often it is necessary to combine the juices of two fruits before the juice will "jell." Sugar helps to make the juice form jelly, but unless pectin and acid are present, no amount of sugar will have that effect.

Fruits used for jelly should not be over-ripe, and sometimes it is better to use green fruits, because as fruit ripens it contains less pectin and acid. Tart apples, grapes, currants, crab apples and plums are good fruits to use for making jelly. Sweet ripe apples, strawberries, blackberries, peaches and pears are poor fruits from which to make jelly.

Types of Jelly-glasses

Lemon and *orange peel* contain pectin in considerable amounts and are sometimes used to make fruit juices "jell." Remove the yellow layer of the peel and put the white material that is left through the food-grinder, cover with water and let stand several hours, then cook slowly for two or three hours, strain the liquid and add it to the fruit juice that lacks pectin.

Sometimes fruits lack acid and are improved for jelly-making by adding lemon juice.

It is always best to *test the juice* in order to determine how much sugar should be added to make good jelly, since fruits of the same variety vary when grown under different conditions. This is done by placing one teaspoonful of fruit juice and one teaspoonful of grain alcohol together in a glass and allowing it to stand for five minutes. Pour slowly from the glass and observe the mass formed; if a firm mass that does not break apart has been formed, then the proportion of one cup of sugar to each cup of juice is correct; if the mass breaks apart into several pieces, use three fourths of a cup of sugar to one cup of juice; if the mass shows no distinct lumps, use one half cup or less of sugar to each cup of juice. This test saves a great deal of time and trouble in making jelly.

In *straining* the juice from the fruit after cooking, a jelly-bag is used. It is usually made from firm cotton cloth that has been thoroughly washed and boiled. The bag may be made three-cornered in shape, so that the juice drips from a corner when hung to drain.

Jelly is usually put up in *glasses* made for the purpose. These should be sterilized by placing them in cold water, bringing it to the boiling-point and boiling for twenty minutes. Do not wipe the glasses; take them from the water with a lifter or wooden spoon and fill at once.

Jelly should be *covered*. An easy method is to use paraffin, which may be melted and poured over the top of the jelly. Cover the glasses, either with the lid that comes with the regular jelly-glass, or with white paper tied on. Store in a dark, cool, dry place.

LABORATORY EXERCISES

JELLY-MAKING

Experiment: Test the following juices to determine what proportion of sugar to juice should be used: grape, sweet apple, plum, crab apple, peach. If necessary, add a measured amount of juice, extracted from lemon peel or orange peel, to the tested juice to make it respond to the test.

CRAB APPLE JELLY

Wash the apples, cut into quarters and remove cores. Add water to the apples, using about half as much water as there is fruit. Boil until tender; place in wet jelly-bag; drain, but do not squeeze bag. Measure the juice and measure the amount of sugar to be used according to the pectin test. Boil the juice a few minutes; add the sugar, which has been warmed by placing in the oven; boil gently until the jelly coats the spoon or until a drop "jells" when dropped on a cold saucer. Pour into hot sterilized glasses.

What can you make from the pulp and skins in the bag?

GRAPE JELLY

Choose grapes that are not over-ripe; wash and pull from stems; place in stew-kettle; add one cup of water for each four quarts of grapes. Cook until the grape skins burst and the fruit is thoroughly softened; place in wet jelly-bag to drain. What proportion of sugar should be used? Follow directions given under Crab Apple Jelly.

REVIEW QUESTIONS

1. What two substances must fruit contain before good jelly can be made from it?
2. Give the steps in jelly-making.
3. How should a jelly-glass be sterilized?
4. How should jelly be cared for after it is cooled?
5. What are the characteristics of good jelly?

CHRISTMAS LESSONS

Home-made candy, packed attractively in pretty boxes or baskets, makes a good Christmas gift.

Small children are better without candy, but it may be used by older persons if it is eaten in reasonable amounts. Candy is more easily digested at the end of a meal than between meals. Candy contains a large proportion of sugar, and sugar when eaten alone is irritating to the digestive organs. A great deal of sugar is found in some dried fruits, such as raisins, dates and figs, and in this form sugar is better for the small child than in candy.

Loaf, granulated and powdered are the forms in which *sugar* is sold. Sugar is made either from sugar cane or sugar beets. The juice which is extracted goes through many processes before the sugar is ready for the market.

When making candies that are to be of a creamy consistency, it is better to use part glucose instead of all granulated sugar. *Commercial glucose* is a syrup that does not crystallize, and therefore helps to keep the candy smooth and creamy. Commercial glucose is manufactured by boiling cornstarch with an acid, and is usually sold in tin containers.

By boiling candy mixtures to different temperatures, different types of syrup may be made. It is always best to use a candy thermometer in order to know when the syrup is cooked enough but not too much. When making fudge, panocha and fondant, the candy should be cooked until it reaches the "soft-ball stage", 236° F.; for chocolate caramels, cook to the "hard-ball stage", 254° F.; for butterscotch, popcorn balls and molasses taffy, cook to the "crack stage", 270° F.

Caramelized sugar is sugar that has been heated without moisture until it melts and becomes a brown syrup. When this is poured over peanuts it is known as "peanut brittle." Caramelized sugar is used also for flavoring custards and cake icings, and in sauces.

Other materials that may be used in cookery to take the place of sugar are honey, maple sugar and syrups of different kinds.

LABORATORY EXERCISES

CANDIES

FONDANT

2 c. granulated sugar	½ c. cold water

Mix the sugar and water, place in saucepan over the fire and stir until sugar is dissolved. Allow the syrup to boil gently until it reaches the " soft-ball " stage. Turn into a greased platter and let stand until a thin film forms on the top, then beat with a wooden spoon until it becomes creamy and white. Wash the hands in cold water and knead the fondant. Wrap the fondant in oiled paper and let it stand in the ice-box a few hours, or longer if desired. It is then in good condition for making into various kinds of candy.

Use in the following ways :

1. Add chopped English walnut meats to some of the fondant, flavor with vanilla, mold into balls.
2. Cover almonds with flavored fondant.
3. Remove the seeds from dates and refill with the flavored fondant.
4. With a toothpick, take up a tiny bit of coloring material and add to fondant. Knead until thoroughly mixed, add any flavoring preferred, mold into shape desired.

PEANUT BRITTLE

1 c. sugar
½ c. peanuts

Place sugar in frying-pan over fire and stir until the sugar is melted and the syrup is a light brown color. Add peanuts and pour immediately into a buttered pan or plate. Mark into squares when the brittle is slightly cooled.

PANOCHA

1 c. brown sugar
1 c. granulated sugar
½ c. milk
1 tbsp. butter
1 c. nut meats
1 tsp. vanilla
$\frac{1}{16}$ tsp. salt

Mix sugar, milk and salt. Boil until it reaches the "soft-ball" stage; add butter, vanilla and chopped nuts; cool slightly, beat until thick, spread on buttered pan. Mark into squares before it is too hard to cut easily.

PARISIAN SWEETS

1 c. figs
1 c. dates
1 c. nuts

Clean dates and figs, and grind the three ingredients through food-grinder. If they are mixed before grinding they blend more easily. Place on bread-board dredged with powdered sugar, knead thoroughly, press out into sheets about one half inch thick. Cut into squares; roll each square in powdered sugar.

SALTED ALMONDS

Use Jordan almonds if possible. Blanch by letting them stand in boiling water until the skin is loosened. Remove the skins, being careful not to break the almonds apart when handling them. Place olive oil in a frying-pan and when it is hot add the nuts; stir over fire until nuts are a light brown color; remove from fat and drain on paper. Sprinkle with salt.

REVIEW QUESTIONS

1. When should candy be eaten? Why?
2. What may be substituted for candy when a small child wants sweets?
3. From what is sugar made?
4. In what forms may sugar be purchased?
5. What is the price per pound of granulated sugar? of powdered sugar? of lump or loaf sugar?
6. How is loaf sugar used?
7. Why is it better to use a thermometer when making candy?
8. To what temperature should a syrup be cooked for the "soft-ball" stage? "hard-ball" stage? "crack" stage?
9. Give examples of candies with which each of these temperatures should be used.
10. What is caramelized sugar?

THE CARE OF THE HOUSE

The housekeeper who does her work most easily follows a plan or *schedule*. Such a schedule will need to be varied often, because of interruptions of different kinds, but having the plan helps to prevent friction, saves time and energy, and makes possible some time that can be used for recreation. There is certain work, such as making beds, planning and cooking meals, that must be done every day and is called "daily tasks"; there are certain other duties, such as the laundry work, that come once a week and are called "weekly tasks"; and there is work that does not come so frequently, such as canning fruit, which is called the "occasional tasks."

When making a schedule, first make a plan for the daily tasks, allowing time that can be used for the weekly and occasional tasks. The *arrangement of the work* will depend upon the location of the home, the type of family, the standard of living, and whether household helpers are employed. The beginning housekeeper will have to experiment with her work until she finds the best arrangement of tasks.

Good equipment, including labor-saving devices for housework, will save the housekeeper a great deal of time and energy. *Good equipment for cleaning* should include good brooms, dust mops, a wet mop with wringer, dust cloths, polishing cloths, cleaning powders, soaps, brushes, plenty of clean cloths, and a suction-sweeper if there are many large rugs or carpets to keep in order. A cupboard or closet in which all this equipment may be kept is a great convenience.

The *daily cleaning* will consist of using the dust mop on hard-wood or painted floors; perhaps it will be necessary to run the sweeper over some of the rugs, and the furnishings in the much used rooms will need dusting. Every room in constant use should be thoroughly cleaned once a week. Dust the small articles and remove them from the room; if the windows are to be washed, take down the curtains and remove them from the room for dusting; open the windows; wipe down the walls with a broom that is covered with a clean bag or cloth; use the suction-sweeper on the rugs, or a dampened broom if no sweeper is available; clean the floor with the dust mop; wipe the windows, or wash them if necessary; dust all the woodwork and furniture; rehang the draperies and replace the small articles.

When cleaning a bedroom, first remove all the bed-clothing from the room. Occasionally the mattress may be taken out, aired and sunned. The mattress may be cleaned regularly with the suction-sweeper which has special apparatus for such purposes. If not taken out, the mattress should be covered with papers or a sheet while the room is being cleaned.

The bathroom needs some cleaning every day. Scour the washstand and tub with a mild cleaning powder; rinse thoroughly with clean water. Clean the faucets (directions are given in the section on dishwashing). Use a brush made for the purpose to clean the trap in the closet; wash off the outside of the closet and water tank. Use the dust mop on a hard-wood floor; a floor covered with linoleum should be mopped with clean water at least once a week.

Porches usually need sweeping every day, and must be scrubbed when necessary and the weather permits.

The equipment used in cleaning should itself be cleaned before it is replaced in the closet. Dry the wet mop thoroughly before hanging it away. Dust cloths must not be used when soiled; "oil dusters" are a good type to buy, because they catch and hold the dust. Never use a feather duster, because the dust it brushes off one place lodges on another.

The modern house, when cleaned carefully every week, closets cleaned when necessary, and curtains washed when soiled, does not require the general spring or fall "house-cleaning" so familiar to everyone.

HOME PROBLEMS

Arrange a plan for the work to be done in your home every day. Probably your mother already has such a plan and will tell you which task she does first, second, etc.

What part of the work do you perform? At what time in the day do you do it? What are the weekly tasks done in your home? Do you help with any of them? How much time every week do you spend on these tasks?

Make a list of work that you consider "occasional tasks."

Clean one room at home and write a report telling just how you did the work.

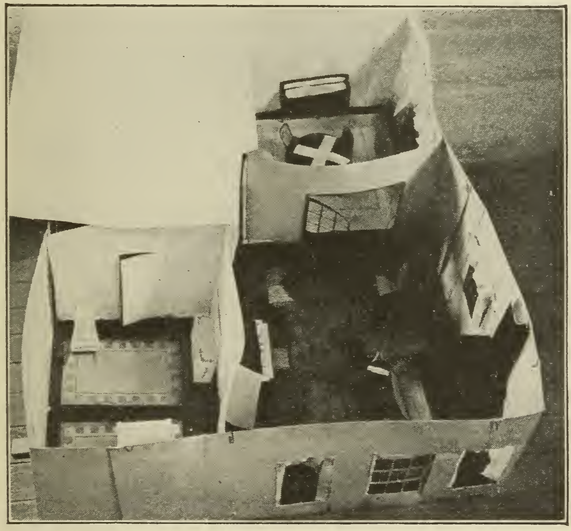
THE CARE OF THE HOUSE (*Continued*)

One of the "occasional tasks" to be done in every home is the cleaning and putting in order of the *closets*. This should be done as often as is necessary. Clothing that has been discarded should be removed and given, either to some person who can use it, or to a charitable organization, or put in the "rag-bag" to be sold to the junk dealer. Soiled clothing should not be allowed to hang in closets for long periods.

To clean the clothes closet: remove all clothing; assort and remove the articles that are not to be put back; take out all boxes, bags and shoes; wash the shelves with warm water and wipe dry; wash the inside of drawers in the same way; wipe floor, if not waxed, with a damp cloth; use an oil duster if the floor is waxed; air the closet thoroughly; dust and replace boxes; hang clothing, bags and cases.

Winter clothing, which is to be put away for the summer after being thoroughly brushed, or perhaps cleaned, may be placed in moth-proof cedar bags, chests, or drawers. Clothing, blankets, or rugs that are to be put away must be clean and may be wrapped in papers to keep out the dust. When articles are stored in this way, it is wise to inspect them often to be sure that they are free from moths.

Boxes and bags can be labeled in such a way that articles may be easily found. A list showing where each article is stored is *a convenient record.* This list might be put on cards that fit into a card-index box and thus be among the records that every housekeeper would find useful. Other records kept in the box might be: the sizes of garments worn by each member of the family; clippings from papers giving household hints, garden hints, or sugges-



Pasteboard House, with Furnishings
In process of construction by the Home Economics class in Columbia City, Indiana.

tions for social affairs; addresses of persons or firms to whom one writes in a business or social way. Every housekeeper will make her own list of desirable records. The use of such a card file saves the loss of time and energy in "looking for things."

Drawers in dressers, chiffoniers and dressing-tables should be kept in order at all times, but it is a wise plan to remove everything from the drawers once a month and wipe out with a damp cloth. If the bottom of the drawer is not well finished, it may be covered with paper before the articles are replaced.

Curtains and draperies should be *cleaned* whenever they need to be. In cities where soft coal is used, it is often necessary to clean white curtains every month. Wool and silk draperies must be dry-cleaned at home or sent to a cleaning establishment often enough to keep them in a sanitary condition. White curtains of net or lace should not be ironed, but should be dried on curtain stretchers in order that they may not lose their shape. Scrim, voile and marquisette curtains look better when ironed. Muslin, Swiss, or lawn curtains should always be ironed. When washing any open-weave material, such as scrim, it is better to squeeze it between the hands than to rub it. Curtains should be well shaken and then soaked in warm soapsuds, washed in hot soapsuds, rinsed thoroughly in several waters, and if white must be put through bluing water; they may be slightly starched if desired. When curtains are to be dried and ironed, hang them, doubled lengthwise, with the lengthwise fold over the clothesline; never hang them by the corners; dampen and fold carefully; iron crosswise of the curtain, being careful not to stretch the edges in any way.

There are many tasks about the home that can be performed by the daughter to assist the mother, and girls who study Home Economics should do such work well. Suggested work for the girl would include: caring for her bedroom, putting away her clothing, collecting her clothing for the laundry, polishing the silver, dusting, serving a meal and sometimes preparing a meal, washing dishes, mending, and helping with the care of a small child.

Housekeeping is a very interesting business, and every girl wants to be a good housekeeper — feeding, clothing and housing her family well. In addition she wishes to be a good home-maker, making the house a happy, inspiring place for children to develop in and for older people to enjoy. She is a good home-maker when she is intelligent, alert, happy and active; when she does her housework so efficiently that she has time to be interested in church, social and civic affairs, and to help make good conditions in her community.

HOME PROBLEMS AND QUESTIONS

To what organizations in the community do women belong?

What is the purpose of each organization?

What organizations for girls are there in your community?

Collect pictures of furnishings you would like to have in your bedroom. Furniture catalogues and advertisements in magazines and newspapers will be helpful for this. Discuss in class the furnishings of the bedroom. Discuss the care of the bedroom. A booklet on "My Bedroom" might be made.

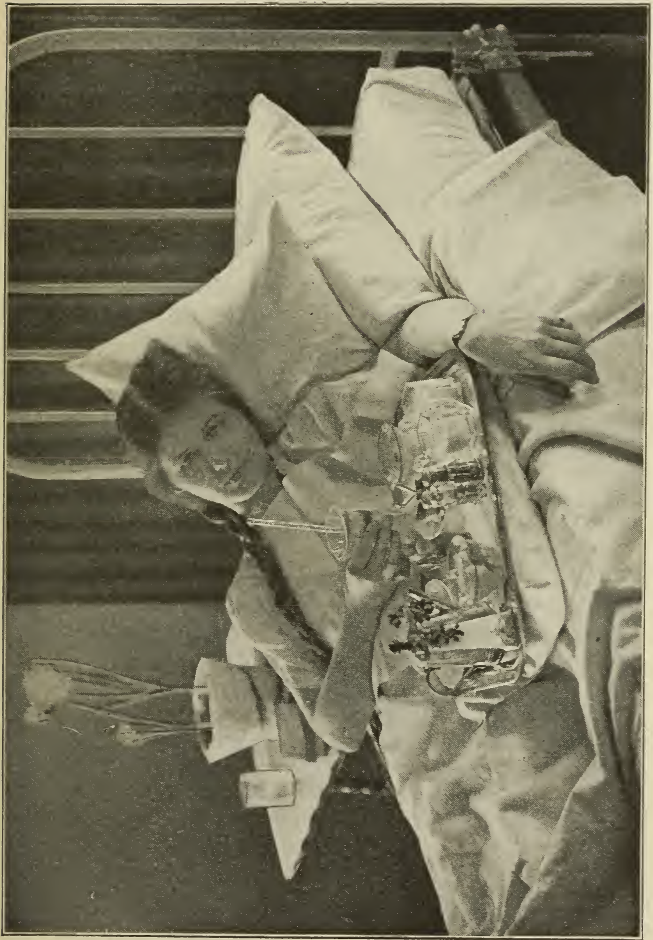
FOOD FOR THE SICK

When serious illness occurs in the family the patient is often taken to a hospital for treatment because there conditions are such that the best of equipment is available, with trained workers to look after the welfare of the patient. There are, however, many cases of illness not serious enough to make it necessary to send the patient to the hospital, yet in which the patient must stay in bed and have good care. In such cases some one in the home must do the nursing and should have some knowledge of such work.

One of the most important things for the home nurse to know is how to prepare and serve the food which the patient needs. Food is especially important, because a poorly nourished body cannot resist nor overcome disease, and in many cases regulating the diet is the main treatment. For special diet of this sort, the home nurse will follow carefully the doctor's instructions regarding kind, amount and preparation of food.

No one in bed can digest the kind or quantity of food that the person can who is taking exercise. Patients often are given too much food while in bed; in other instances the patient does not get enough food.

If the invalid's appetite is poor, perhaps it can be stimulated by serving fruit juice, by giving meat broth, or by making the tray extremely attractive.

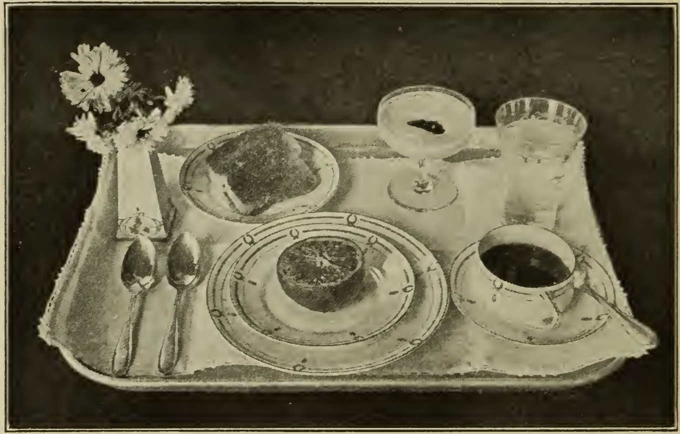


INVALID'S TRAY, SUPPORTED BY PILLOW

Observe the glass tube through which liquid food may be taken.

To make the invalid's tray attractive there are several points to remember:

1. Do not have too great a variety of foods on the tray at one time.
2. Do not serve large portions of food.



Invalid's Tray, Well Arranged

3. Have all foods well cooked and served in a neat way.
4. Use attractive dishes and linen that is absolutely clean.
5. A flower on the tray makes it more attractive. It may be laid on the tray or placed in a small vase which is set on it.
6. Sometimes serving the meal as two courses will make it more appetizing to the patient.
7. Used dishes and trays should be removed from the room as soon as the patient is done with them.

8. The tray used for serving the meal should be large enough, but not so large that it is hard to handle. A rectangular tray is more convenient than a round one.

9. The temperature of the food served must be watched carefully. As a rule hot foods should be served hot and cold foods served cold, but under certain conditions the rule may have to be modified.

10. Never ask a sick person what kind of food is desired. When the food is a "surprise" it sometimes stimulates the appetite.

Dietaries for invalids may be classified in the following way:

1. *Liquid*, including broths, beef extract, beef tea, milk, gruels, eggnog, cream soups, cocoa, etc.
2. *Soft*, including soft-cooked eggs, milk toast, junket, cooked custards, jellies, etc.
3. *Soft solid*, including eggs, creamed toast, asparagus, baked custards, tender chicken, oysters, creamed sweetbreads, etc.
4. *Special diet*, one ordered by a physician for a particular case.

In many cases of illness it is well to consult the physician regarding the type of diet that the patient should be given. In the case of high temperatures, it is wise to give plenty of water with a liquid diet; in cases of bad colds, grippe, or similar diseases, a soft diet may be used; in cases of constipation, use coarse foods which contain large quantities of cellulose, such as Graham bread, vegetables, fruits and cereals. The fruits are especially valuable in the treatment of constipation because of the organic acids they contain. Any one troubled with constipation should eat meals regularly, take plenty of exercise, drink plenty of water and should be regular in regard to the calls of nature.

The convalescent patient should have his or her requests for certain foods gratified whenever the food is suitable and the requests reasonable.

HOME PROBLEMS AND QUESTIONS

Read in books and bulletins on nursing about the proper kind of sick-room. Make a drawing showing how the room should be arranged.

What type of clothing should a home nurse wear? Why?

Perhaps a nurse in the neighborhood can give demonstrations on making the patient's bed, giving the patient's bath, and on first aid.

LABORATORY EXERCISES

INVALID COOKERY

JUNKET

¾ c. milk
1 tbsp. sugar
¼ tsp. vanilla
¼ junket tablet
1 tsp. cold water
Few grains salt

Dissolve junket tablet in the cold water. Heat milk in top part of double-boiler, add sugar, salt, flavoring and dissolved junket tablet. Pour quickly into small molds, let stand in a warm place until set, then put in a cold place to chill. Remove from molds and serve with or without sugar and cream. Sugar may be omitted if desired.

EGGNOG

1 egg
¾ tbsp. sugar
Few grains salt
1½ tbsp. fruit juice *or*
¼ tsp. vanilla
⅔ c. cold milk

Beat egg slightly; add sugar, salt and fruit juice slowly; and add the milk gradually. Strain and serve. Sugar may be omitted if the fruit juice is sweetened.

OATMEAL GRUEL

$\frac{1}{4}$ c. rolled oats	$\frac{1}{4}$ tsp. salt
$1\frac{1}{2}$ c. boiling water	Milk or cream

Add oats, mixed with salt, to boiling water; let boil two minutes, then cook in double-boiler one hour. Strain, bring to boiling-point, and add milk or cream to meet the needs of the case.

REVIEW QUESTIONS

1. State the points that are essential to remember when preparing an invalid's tray.
2. Into what classes may diets for invalids be divided?
3. Make a day's menu for a patient who is in bed with a bad cold. What type of diet is this?
4. What foods should be eaten when one is troubled with constipation?
5. State several ways in which milk may be served to invalids living on a liquid diet.
6. State several ways in which egg may be served to an invalid living on a soft diet.
7. Why are milk and eggs important foods to use in invalid cookery?
8. Should a large amount of meat be used in an invalid's diet? Why? Name some kinds to serve and ways of preparing them for an invalid on a soft-solid diet.
9. Where can junket tablets be purchased?

INDEX

ABSORBENT COTTON, 22
Absorbents for grease stains, 112
Adulteration, in fabrics, tests for, 143–144
  of cotton goods, 52–54
  of wool, 81
Air in refrigerator, circulation of, 173
Albatross, 89
"All-linen" toweling, 67
Almonds, salted, 316
Alpaca, 80, 88
Alpine Rose, muslin, 32
Angora goat, 80
Apple, baked, 178
Apple sauce, 187
Apron gingham, 18
Apron, sewing-, 10, 11, 16–18, 21, 23–28
Artificial ice, 179
Artificial silk, 97

BABY RIBBON, 55
Back-stitching, 95
Bacon, broiled, 210
Baker's bread, 200–201
Baking, 153
  bread, 198–200
Baking powder, 236–237
Baking-powder biscuits, 238
Baking soda, 237
Banana salad, 231
Band, for sewing-apron, 17
"Bargains", delusions in, 133
Basting, 9
Basting-stitches, 9
Bathing, 114
Bath towel, 68
Batiste, embroidery on, 91
Batter cakes, 204
Beadings, 47, 93
Beans, baked, 226
Beef, casserole of, 270
  creamed dried, 211
  cuts of, 271–274
  pan-broiled steak, 270
  pot roast, 276
  roast, 270
  stew, 277
  stock, 279
  Swiss steak, 276
Beef and rice croquettes, 253
Berkeley cambric, 33
Beverages, 178–183
Bias casings, 57–59
Blanc mange, 266
Blanket-stitch, 27
  on collar, 137–138
Bleaching, agent, 111–113
  cotton, 29
  linen, 74
Bobbin, 29
Boiling, 153
Bolt, of cotton cloth, 30
Braising, 153
Bread, 194–204
  crumbs, 202, 223
  nut, 246
  quick, 235–238
"Bread and Bread-making in the Home", 201
Bread-mixer, 198, 199
Breakfast, cereals for, 193–194
  dishes for, 210, 211, 213, 217

Breakfast — *Continued*
  eggs for, 206–208
  planning the, 175–177
  table of food Calories for, 295
Breaking flax, 73, 74
Brilliantine, 88
Broadcloth, 88
Broiling, 152
Budget, the, 101
Burr-picker wool cleaner, 84
Butter, value as food, 296
Buttonhole scissors, 4
Buttonholes, making, 25–27
Buttons, sewing on, 25

CAKE, 239–242
  date, 246–247
  sponge, 242
  standard, 241
Cake-making, 240–241
Cake-mixer, 240
Calico, 40
Calorie, 291–295, 298–301
Calorimeters, 292–293
Cambric, 33
  embroidery on, 91
Camel, 80
Candies, fondant, 315
  panocha, 316
  Parisian sweets, 316
  peanut brittle, 316
Candy, 314–316
Canned fruits, 185, 305–310
Canning, 305–310
Can-rubbers, 307
Canton flannel, 41
Caramel syrup, 191
Caramelized sugar, 315
Carbohydrates, 156
Carding, 29
Care, of clothing, 106–109
  of the house, 317–324
Carrots and peas, 258–259
Cartwright, Edmund, inventor of cotton loom, 29
Cashmere, 89
Casings, 57
Cereals, 191–194
Certified milk, 189
Chain-stitch, on collar, 138
Challie, 89
Chambray, 19
Cheese, 221–223
  soufflé, 222
  strata, 223
Cheesecloth, 41
"Chemical Composition of American Food Materials, The", 257, 294–295
Cheviot, 88
Chicken, 281–282, 283–285
  stewed, 284
Chiffon, 65
Child, proper food for, 296
China, selection of, 209
China silk, 65
Chintz, 41
Chloroform, 112
Christmas gifts, making, 144–147
Christmas lessons, 314–316
Cleaning, household, 318–320
Cleanliness, at table, 244–245
  in the kitchen, 159–161
  when cooking, 155
Closets, cleaning, 320
Cloth, 15–16
  dyeing, 49–50
  examination of, 16
  making cotton, 28–30
    woolen, 83–85
Cloth beam, 29
Clothing, appropriate, 129–131
  care of, 106–109, 320–321
  cost of, 101
  harmony in, 126
  healthful, 114–116
  ready-made, 134–136
  removing stains from, 110–113
  suitable amount of, 116

Clothing Book, the, 102, 103–104, 128, 131–132, 136
Cluny lace, 45
Coal stove, 163, 164, 165
Cocoa, 180, 183
Coffee, 180–181, 182
  stains, 112
Cold-pack method of canning, 305–309
Cold storage, 301–302
Color, selection of proper, 121, 122
  setting the, 107
Combination service, 215
Commencement dress, 130
Complexion, colors becoming to, 121
Compressed yeast, 196
Condensed milk, 189
Conserve, grape, 303–304
Consumers' League label, 136
Consumer, some points for, 132–136
Conveniences, in kitchen, 161
Cook book, card-file, 152
Cooked dressing, 230
Cookers, for canning, 306
Cookery, 149–329
  processes used in, 151–154
Cookies, 239
Cooking, importance of following directions in, 153
  utensils, 165–166
Cord, crocheted, 57
Corn, scalloped, 258
Corn bread, Southern spoon, 238
Corn soup, cream of, 219–220
Cornstarch, 264
Corsets, 116
Cotton, 15, 22–23, 28–30
  bales, 23
  bleaching, 29
  bolls, 22, 23
Cotton — *Continued*
  carding, 29
  cloth, 15
    making of, 28–30
    testing for strength, 53
  countries producing, 22
  fiber, 22, 23, 140
  gathering, 23
  gin, 23
  growing, 22
  loom, 29
  picker machine, 28
  seed oil, 23
  sizing, 29
  starching, 30
  weighting, 53
  wide use of, 22
Cotton, darning, 109
Cotton floss, 16
Cotton materials
  absorbent cotton, 22
  calico, 40
  cambric, 33
  Canton flannel, 41
  cheesecloth, 41
  chintz, 41
  crêpe, 32, 33
  cretonne, 41
  damask, 76
  denim, 41
  dimity, 10, 12, 33
  dotted Swiss, 53–54
  flannelette, 41
  gun cotton, 22
  long cloth, 32
  mercerized cotton, 54
  muslin, 32
  nainsook, 33
  organdie, 41
  percale, 41
  piqué, 42
  sateen, 42
  unbleached muslin, 32
Cotton stockings, 97
Cotton tape, 56

Cotton in linen fabrics, tests for, 143
  silk fabrics, tests for, 143
  wool fabrics, tests for, 143
Cover-bags, 107, 145
"Cover", in table service, 213–215
Covert cloth, 89
Crab apple jelly, 313
Crash toweling, 67, 75
Cream, 188
Cream of wheat with dates, 193–194
Cream toast, 190
Crêpe, cotton, 32, 33
Crêpe de Chine, 65
Cretonne, 41
Crocheted cord, 57
Croquettes, 252–253
Cross-barred dimity, 33
Croûtons, 220
Custard, baked, 247

DAMASK, 75–76
  toweling, 67
Darning cotton, 109
Darning stockings, 109–110
Date, cakes, 246–247
  pudding, 234
Denim, 41
Design, selection of proper, 126–127
Desserts, 286–290
  frozen, 297
Diet, proper, 175–177, 295–296
Dietaries for the sick, 327
Dimity, 10–12
Dining room, the, 208–217
Dinner, menu for, 277, 291
  plan for, 249–251
  planning the, 287–288
Directions in cooking, importance of following, 153
Dishwashing, 169–172
Dotted Swiss, 53–54
Double-hemstitching, 69
Double-thread sewing-machine, 37
Draperies, care of, 322
  for dining room, 208, 210
Dress, Commencement, 130
  suitable for cooking, 154
  the becoming, 126–128
  the wash, 120–144
Dress linens, 77
Dressing, salad, 228, 229–230
Dried fruits, 185, 232–234
Dried legumes, 225–226
Dry-cleansing, 113
Drying, 302
Dyeing, 20, 49–50
  silk, 64
  wool, 85

EGGNOG, 328–329
Eggs, 204–208
  fried or sautéd, 285
  hard-cooked, 206
  poached, 206
  scrambled, 207
  soft-cooked, 206
Electric stove, 164, 165
Embroidery, flouncings, 93
  how to join, 100
  on underwear, 90–93
Emery-bag, 3, 6
English service, 215
Entre deux insertion, 91
Ether, 112
Evaporated milk, 189

FAT, 156
Feather-stitching, 24
Felting wool, 80
Fibers, 15
  cotton, 140, 141
  flax, 140, 141
  silk, 140, 141
  wool, 140, 141
Filet lace, 45

Fireless cooker, 166–169
Fireless gas range, 166
Fish, 282–283, 285
Flannel, 89
Flannelette, 41
Flax, 70–74
  fibers, 140, 141
Flaxseed, 70
Fleece, 80
Flocks, in wool yarns, 81
Floor, dining room, 208
  kitchen, 159
Floss, cotton, 16
Flouncings, 93
Flour, 194–195
  pastry, 239
Fondant, 315
Food, 149–329
  economy in using, 218–219
  for the sick, 324–329
  in daily meals, proportions of, 291–297
  100-Calorie portions of cooked, 301
  100-Calorie portions of uncooked, 300
  principles, 155–156
  some points about, 155–156
  value of eggs as, 205–206
  value of milk as, 187–189
Foods, preservation of, 301–313
Foodstuffs, five groups of, 155–156
Freezing mixture, 287
French chalk, 112
French dressing, 229
French gingham, 18
French seam, 39
Fricasseeing, 153
Frosting, boiled, 242
Frozen desserts, 287
Fruit, for breakfast, 177–178
  oranges, 177
  preservation of, 303–313
  stains, 112
Fruits, 185–187
  dried, 232–234
Frying, 153
Fuel, 164
Fuller's earth, 112
Furniture, dining-room, 209, 210

Game, 281–282
Garbage-can, 174
Gas burner, cleaning, 165
Gasoline, 112
Gas range, 163–166
Gathering, 13–14
  stitch, 13–14
Gelatine, 278–280
Gibbs, James A. E., inventor of the one-thread sewing-machine, 36
Gifts, making of simple, 144–147
Gingham, 11–12, 18–21
Girls, clothing suitable for, 127, 129–131
Glass toweling, 67
Glucose, 314
Gluten, 195
Graham flour, 195
Grape, conserve, 303–304
  jelly, 313
  juice, 304
Grapefruit, 186
Grass stains, 112
Grease stains, 112
Gruel, oatmeal, 329
Guest towels, 68
Gun cotton, 22

Hackling flax, 74
Hair, arrangement of, 131
Hair-ribbons, 127–128
Ham and eggs, scalloped, 253
Handkerchief linen, 76
Hand-sewing, 36
Hard-cooked eggs, 206
Hats, care of, 108
  selection of, 127

Health, proper clothing necessary to, 114–116
Hemmed patch, 123–124
Hemstitching, double, 69
Henrietta, 89
"Home-made Fireless Cookers and their Use", 169
Homespun, 88
Hominy, 264
Hooks and eyes, 108
House, care of the, 317–324
Household linen, 76
Housekeeping, 323
Howe, Elias, inventor of sewing-machine, 36
Huckaback toweling, 67, 75
Hydro-extractor, wool drier, 84

Ice, 179
  artificial, 179
Ice-box, 161
Ice cream, freezing, 287
  vanilla, 297
Ices, lemon, 298
Implements for sewing, 3–9
  use of, 8–9
Ink stains, 112
Insertion, 91–93
Invalid cookery, 324–329
Irish lace, 45
Ironing-board, 161

Jacquard, Joseph Marie, inventor of silk-loom harness, 64
Jars, testing preserve, 308
  types of preserve, 306–307
Javelle water, 111
Jelly-bag, 312
Jelly, lemon, 280–281
Jelly-making, 310–313
Jewelry, avoidance of, 131
Juice for jelly, testing, 311–312, 313
Junket, 328

Kimono nightgown, 34
Kindergarten gingham, 19
Kitchen, 158–161
  arrangement of, 160
  dress appropriate for, 130
  floor of, 159
Knitted stockings, 96–99
  underwear, 96–99
Knives, 166

Lace, 43–45
  beading, 47
  edging, 46–48
  insertion, 46–48
  machine-made, Cluny, 45
    filet, 45
    Irish, 45
    torchon, 45
    Valenciennes, 45
Ladies' cloth, 88
Lamb, 274
  cuts of, 274
Lawn, 12
"Left-over" dishes, 251–253
"Left-overs," 218–219
Legumes, dried, 225–226
Lemon, ices, 298
  peel, 311
Linen, 15, 70–77
  cambric, 76
  fabrics, test for cotton in, 143
  fiber, 70, 140, 141
  lawn, 76
  material for wash dress, 121
  money-bag, 145–146
  tape, 56
Liquid yeast, 197
Lisle-thread stockings, 97
Llama, 80
Lock-stitch sewing-machine, 37
Long cloth, 32
Lonsdale cambric, 33
Loom, cotton, 29
  silk, 64
Lunch, the school, 243–248

Luncheon, menu for, 248
  plan for, 218–219

Macaroni, 263–264
  and cheese, 266
Machine-sewing, 36
Madras gingham, 19
Manners, table, 211–213
Marguerites, 184
Marmalades, 303
  orange, 303
Materials, for nightgown, 34
  for towels, 67, 68
  for underslip, 81, 82
  for underwear, 32–33
  purchase of, 133–136
Mayonnaise dressing, 229–230
Meals, for the family, 291–297
  proper planning of, 156
Measurements in cooking, 157–158
Measuring for sewing-apron, 16
Meat, 267–277
  charts, 272, 273, 274, 275
  for breakfast, 210–211
  substitutes for, 221–222, 224–225
Melton, 89
Menu, dessert in the, 286–287
  for breakfast, 175–177, 213, 217
  for dinner, 277, 291
  for luncheon, 232, 248
  for supper, 232, 248
Mercerized cotton, 54
Merino wool, 80
Microscope, fibers under the, 140
  use of the, 23
Milk, 187–190
Mineral matter in milk, 188
Minerals, 156
Mohair, 88
Moiré silk, 64
Money-bag, linen, 145–146
Mousse, chocolate, 298
Muffins, 238
Mungo, in wool, 81
Muslin, 32
  unbleached, 32

Nainsook, embroidery on, 91
Nap, 15
Napkins, 76
Napping wool, 85
Needle, 3, 4–5
  care of, 5
  sizes used in plain sewing, 5
  tape, 57
  use of coarse, 5
Nightgown, 34, 42–43, 46, 48, 51–52, 54, 57–59, 65
Noils, in wool yarns, 81
Nut and cheese loaf, 226
Nut bread, 246
Nuts, 224–225

Oatmeal gruel, 329
Oats, rolled, 169
Oil stains, 112
Omelette, puffy, 207–208
Onions, creamed, 259
Open-kettle method of canning, 305
Orangeade, 164
Orange, marmalade, 303
  peel, 311
Oranges, 177
Organdie, 41
"Organzine," silk warp, 64
Overhanding, 14
Overhand patch, 125
Oxalic acid, 111
Oysters, 282–283
  scalloped, 284–285

Paint stains, 112, 113
Pan-broiling, 153
Panocha, 316
Parisian sweets, 316

Parker House rolls, 203–204
Pasteurized milk, 189
Pastry, plain, 288–289
Patch, hemmed, 123–124
  overhand, 125
"Pattern-cloth", table linen, 76
Peaches, sweet pickled, 304
Peanut brittle, 316
Pears, canning, 308
Pea sandwiches, 227
Peppers, baked stuffed, 158
Percale, 41
Personal appearance, at table, 211
  in work, 5
  when cooking, 154–155
Picker, cotton machine, 28
Picot, 48
Pie, 286–287
Pin-cushion, 3, 6
Pins, 3, 6
Piqué, 42
Placket, continuous, 95
  in underslip, 94–96
Poached eggs, 206
Pocket, for sewing-apron, 31
Pongee, 65
Pork, 274–275
  cuts of, 275
Potato, 259–262
  baked stuffed, 261
  croquettes, 253
  French fried, 262
  mashed, 174
  riced, 174
Poultry, 281–282, 283–285
Preservatives, 302–303
Pressing garments, 107–108
Primitive cooking, 151–152
Protein, 156
  in eggs, 205
  in milk, 188
Prune whip, 234
Pudding, sauce, 290
  steamed, 289–290
Pure Food Law, 132

QUICK BREAD, 235–238
Quilt, patchwork, 36

READY-MADE GARMENTS, 103
  selection of, 134–136
Recipes, apple sauce, 187
  baked apple, 178
  baked beans, 226
  baked custard, 247
  baked squash, 258
  baked stuffed peppers, 158
  baked stuffed potatoes, 261
  baking-powder biscuits, 238
  banana salad, 231
  batter cakes, 204
  beef and rice croquettes, 253
  beef stew, 277
  beef stock, 279
  blanc mange, 266
  boiled frosting, 242
  bread, 197–198
  bread crumbs, 223
  broiled bacon, 210
  candied sweet potatoes, 261
  canning pears, 308
  canning tomatoes, 309
  caramel syrup, 191
  carrots and peas, 258–259
  casserole of beef, 270
  cheese soufflé, 222
  cheese strata, 223
  chocolate mousse, 298
  cocoa, 180
  coffee, 180–181
  cooked dressing, 230
  crab apple jelly, 313
  creamed dried beef, 211
  creamed onions, 259
  cream of corn soup, 219–220
  cream of tomato soup, 219
  cream of wheat with dates, 193–194
  cream toast, 190
  croquettes, 252–253
  croûtons, 220

Recipes — *Continued*
  date cakes, 246–247
  date pudding, 234
  eggnog, 328–329
  fondant, 315
  French dressing, 229
  French fried potatoes, 262
  French toast, 191
  fried or sautéd eggs, 285
  grape conserve, 303–304
  grape jelly, 313
  grape juice, 304
  hard-cooked eggs, 206
  hard sauce, 290
  junket, 328
  lemon ice, 298
  lemon jelly, 280–281
  macaroni and cheese, 266
  marguerites, 184
  marmalades, 303
  mashed potatoes, 174
  mayonnaise dressing, 229–230
  muffins, 238
  nut and cheese loaf, 226
  nut bread, 246
  oatmeal gruel, 329
  orangeade, 164
  orange marmalade, 303
  pan-broiled steak, 270
  panocha, 316
  Parisian sweets, 316
  Parker House rolls, 203–204
  peanut brittle, 316
  pea sandwiches, 227
  perfection salad, 280
  plain pastry, 288–289
  poached eggs, 205
  potato croquettes, 253
  pot roast, 276
  prune whip, 234
  pudding sauce, 290
  puffy omelette, 207–208
  rice, 266–267
  riced potatoes, 174
  roast beef, 270

Recipes — *Continued*
  rolled oats, 169
  rolls, 202
  salmon croquettes, 253
  salmon salad, 231
  salted almonds, 316
  sandwiches, 184–185
  scalloped corn, 258
  scalloped ham and eggs, 253
  scalloped oysters, 284–285
  scrambled eggs, 207
  soft-cooked eggs, 206
  soup-sticks, 220
  soup stock, 279
  Southern spoon corn bread, 238
  sponge cake, 242
  standard cake, 241
  steamed pudding, 289–290
  stewed chicken, 284
  sweet pickled peaches, 304
  Swiss steak, 276
  syrup for canning, 309
  tea, 181
  tomato sauce, 227
  vanilla ice cream, 297
  vegetable salad, 231
  vegetable soup, 280
  Welsh rarebit, 223
  white sauces, 189–190
Records, convenience of keeping, 321–322
Reeling silk, 61–62
Refrigerator, 173
Retting flax, 72
Ribbon, 55–57
Rice, 262–263, 266
Rippling flax, 71
Roasting, 152
Rolls, 202–204
"Routing lines" in kitchen, 160, 161, 162
Rubbers, care of, 108
Ruffle, on underslip, 82, 104
Running-stitches, 9–10

Russian, crash, 75
  service, 215

SALAD, BANANA, 321
  perfection, 280
  salmon, 231
  vegetable, 231
Salad dressings, 228, 229–230
Salads, 228–231
Salmon, croquettes, 253
  salad, 231
"Sampler", 36
Sandwiches, 184–185, 245
  pea, 227
Sateen, 42
Satin, 65
Sauce, hard, 290
  pudding, 290
  tomato, 227
Sautéing, 153
Scallops, in embroidery, 91
  on edge of collar, 139
Schedule of work, importance of, 317–320
School, dress appropriate for, 130
  lunch, 243–248
Scissors, 3, 8
  buttonhole, 4
  how to hold, 8
Score card for bread, 201
Scotch gingham, 19
Scouring wool, 84
Scutching flax, 73, 74
Seam, 38–40
Selvedge, 15
Serge, 88
Service, 213–217
  combination, 215
  English, 215
  Russian, 215
Sewing, 1–147
  care of work, 6
  implements for, 3–9
  position when, 5
  use of coarse thread for, 5
Sewing-apron, 10–11, 30–31, 35
  making the, 16–18, 21, 23–28
  materials for, 10–11, 16
Sewing-basket, 3
  implements for, 3–9
  preferable to bag or box, 3
Sewing-machine, 36–40
Shearing, 80
Shears, 3–4
Sheep, 80
Sheeting, 76
Shoddy, in wool, 81
Shoe laces, 108
Shoes, 115
  care of, 108
Shuttle, 29
Sick, food for the, 324–329
Silence-cloth, 213
Silk, 15
  cloth, 15
    chiffon, 65
    China, 65
    crêpe de Chine, 65
    pongee, 65
    satin, 65
    taffeta, 65
    velvet, 65
  fabric, test for cotton in, 143
    test for "true" or artificial, 143–144
  fibers, 140–141
  looms, 64
  making of, 59–65
  raising, 59–60
  stockings, 97
Silkworms, 60–61
Singer, Isaac M., improves sewing-machine, 36
Single-thread sewing-machine, 37
Sink, the kitchen, 159–161
  care of, 172
Sizing, cotton, 29
  too much not desirable, 120

Skim milk, 188
Slender figure, pattern suitable for, 127
Snap fasteners, 108
Soap, 170
Soft-cooked eggs, 206
Solvents for stains, 112
Soup, 278–280
  cream of corn, 219–220
  cream of tomato, 219
  stock, 279
  vegetable, 280
Soup-sticks, 220
Spaghetti, 264
Spinning, 16
Squash, baked, 258
Stains in clothing, to remove, 110–113
Starch, 112
Starchy foods, 260, 262–267
Steaming, 153
Sterilization, 303
Stewing, 153
Stitches, back, 95
  basting, 9
  blanket, 27, 137–138
  chain, 138
  cross, 77
  feather, 24–25
  gathering, 13–14
  hemming, 12–13
  machine, double-thread or lock-stitch, 37
  overhanding, 14
  running, 9–10
  single-thread or chain-stitch, 37
Stocking, darning a, 109–110
Stockings, 115
  artificial silk, 97
  cotton, 97
  knitted, 96–99
  lisle, 97
  silk, 97
  woolen, 97
Stout figure, colors suitable for, 121, 122
  patterns suitable for, 127
Stove-holders, 146–147
Stoves, 163–166
Street coat, choice of, 126
Strength, tests for, 141
Substitutes for meat, 221–222, 224–225
Sugar, 314–315
Supper, menu for, 248
  plan for, 218–219
Sweet potatoes, candied, 261
Swiss, embroidery on, 91
Syrup, caramel, 191
  for canning, 309

TABLE-LINEN, 75–76
Table, manners, 211–213
  setting the, 213–215
Table, for processing fruits and vegetables, 310
  of Calories for breakfast, 295
  of 100-Calorie portions of cooked foods, 301
  of 100-Calorie portions of uncooked foods, 300
  of warmth and energy requirements, 293
Taffeta, 65
Talcum powder, 112
Tape, cotton and linen, 56
Tape-line, 3, 6, 8
Tape-needle, 57
Tapioca, 264–265
Tea, 181, 182–183
  stains, 112
Tearing tests, 141
Temperatures in cooking, 167
Tests, adulteration, 143
  burning, 141
  chemical, 143
  for textiles, 139–144
  for wash-dress material, 120
  of juice for jelly, 311–312

Tests — *Continued*
  shrinkage, 142
  strength, 141
  under microscope, 140
  weighting, 142–143
Textile Book, 12, 21, 34, 50, 65, 75, 77, 89, 90, 93
Textiles, 1–147
  tests for, 139–144
Thermometer, 167
  candy, 314–315
Thimble, 3, 7, 9
Thread, 3, 5, 8, 22
Toast, 194, 202
  cream, 190
  French, 191
Tomato sauce, 227
Tomato soup, cream of, 219
Tomatoes, canning, 309
Torchon lace, 45
Towel, 67–68
  making the, 68–69, 72, 77–79
Toweling, 67–68, 75
  "union", 67
"Tram", silk woof, 64
Trimming, selection of, 130
Turkish towel, 68
Tweed, 88

UNBLEACHED MUSLIN, 32
Underclothing, 114–115
Underslip, making the, 81–82, 86–87, 93–96, 100, 103–106, 116–119
Underwear, cotton used for, 32–33
  embroidery on, 90–93
  knitted, 96–99
  laces for, 45
  materials for, 97
  ribbons for, 55–57
  tapes for, 56, 57
  washing woolen, 115
Union suits, 99, 114
"Union toweling", 67
Utensils, cooking, 165–167

VALENCIENNES LACE, 45
Veal, 274
  cuts of, 273
Vegetable salad, 231
Vegetables, 254–262
Velvet, 65
Vermicelli, 264
Vitamines, 156, 185, 188, 195
Voile, insertion, 91

WAISTBANDS, 116
Warp, 15
Wash dress, making the, 128–129, 137–139
  materials for, 120–121
  planning the, 122–123
  selection of, 120–122
Washing, fruit, 183
  woolen underwear, 115
Water, 156, 178–179
  hard and soft, 170
Water glass, 205
Weaving, 16
Weaving-card, 30–31
Weighting, cotton cloth, 53
  silk, 64
  tests for, 142–143
Welsh rarebit, 223
White sauces, 189–190
Whitney, Eli, inventor of cotton gin, 23
Whole-wheat flour, 195
Wilson, Allan B., improves sewing-machine, 36
Wood stove, 163, 164, 165
Woof, 15
Wool, 15, 80–90
  fiber, 80, 140
  stockings, 97
  tests for cotton in, 143
Woolen cloth, 15
Woolen material, albatross, 89
  alpaca, 88
  brilliantine, 88
  broadcloth, 88

Woolen material — *Continued*
  cashmere, 89
  challie, 89
  cheviot, 88
  covert cloth, 89
  flannel, 89
  Henrietta, 89
  homespun, 88
  ladies' cloth, 88
  melton, 89
  mohair, 88
  serge, 88
  tweed, 88
Woolen underwear, washing, 115
Woolen yarn, 84, 85
Work, schedule of, 317–320
Worsted yarn, 84, 85

YARN, cotton, 29
  woolen, 84, 85
  worsted, 84, 85
Yeast, 195–197
Yolk, oil from wool fiber, 83

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